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<110> Lupski, James R
Wilkoel, Cornelius F
Takashima, Hiroshi

<120> Defects in Periaxin Associated with Myelinopathies

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<141> 2001-12-13

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SEQUENCE LISTING

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gaacttaaaa tcttgcagcc ttgggggctg gagaggtggc ccagaggtta agagcactgg 5400

ctgctcatgc agaggtcctg agttcaattc cc 5432

<210> 30
<211> 468
<212> DNA
<213> Arabidopsis

<400> 30
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ggaatctctg gaactgcagg ttttgtaatt tctggaacct tgggcagttc aggttttgga 180

acttctggaa tcttcggcag ttcaggcttt ggaatctctg gaaacttagg agcctcagac 240

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tcaggcttct gaatctccgg catcttgggc aactcgggtt tcttgaatct ccggcatctt 360

aggtaactcc ggcattttgg gcaactcccg gcttctggat ctccggtacc ttaagagcct 420

caagcttggg aactcttggc aactttggca actcaaggct tttggaat 468

<210> 31
<211> 668
<212> DNA
<213> Mouse

<220>
<221> misc_feature
<222> (1)..(668)
<223> n equals unknown

<400> 31
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attagtgcta gtaatgtcac acacaaaatg gggggctagg ctggggaatg gaaagacaag 180

aggggaatc cacagctgtc ctggggcttc agatggcagc agcctgggtt ccctcaattc 240

ctggtggaac ctggaactgc tgtttctgaa aatcccacac tgggcagtcg gaccctgaat 300

ccaccttctt cccggtccct actcccactc cgggccttgg ggcttaagga caccctagga 360

aaacggaatt tgggtgactt ctccccaact ggggacttgg aggttgcatc accctcctgt 420

ccctagagac tttagaaggg gaagccaagc ctacccgagg caggcggacc cttaccctac 480

cccggcgact ggaagcccct tccccactgc cttcttcctc ctcctaggac ttggagagcc 540

ttctcccgag accgactcac tctggcttga acccactcng ggtagcctga gctttgactc 600

ttagcctttt ctcccacttc tatcccttcc ttgccctttg cagaccaaca agggaggcgg 660

accttgag 668

<210> 32
<211> 433
<212> DNA
<213> Mouse

<220>
<221> misc_feature
<222> (1)..(433)
<223> n equals unknown

<400> 32
cagaaactca gatggacgtg tcagccccgg ggaaaagctg gaggccatag ctgggcagct 60

taagatccct gcggtggaat tggtcacacc gggagctcag gagacagaga aggtcaccag 120

tggagtgaag ccgtcaggcc tccaggtgtc caccactggg caggtggttg cagagggcca 180

ggagagtgtg cagagggtgt ccacactagg tatctctttg ccccaggtgg aattggccag 240

ctttggggag gcaggccctg agatcgtagc cccttctgca gagggcacag caggctctag 300

ggtccaggtg ccacaggtga tgctggagct acctggaacc cacgtggcag ggggtgatct 360

gttagtgggt gagggcatct tcangatgcc ccccgtgaca gtgcccctcc ttgtgctggc 420

tgtggggctg gcc 433

<210> 33
<211> 451
<212> DNA
<213> Human

<400> 33
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aggagcaggc ctccctgcca gccctggtca gtcacccacc tcccggccct cttagggtta 120

gtgctagtta tcacacacac aacagcgagg gggtagagaa aggaaggcaa gaagggatcc 180

ccatctgact aggggcttca tacagccgca gcctgagccc cctccatcct ggccgggcct 240

ggagcccctg tctctgaaaa ccccacgctg ggcagccgca cccgcaatcc accctcttcc 300

tggtccccac tcccactccg ggccttgggg cttagggaca ccctggggaa gcggaacttg 360

ggtgacttct ctctgactgg ggacttgggg gctgcatcgc cctcctgccc ccgagaggct 420

ttagaagggg ccgccaggcc tacacgtggc a 451

<210> 34
<211> 711
<212> DNA
<213> Mouse

<220>
<221> misc_feature
<222> (1)..(711)
<223> n equals unknown

<400> 34
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gcccctgttg gtctgcanaa ggccaagnga gggatagaag tggagaaaag gctaagagtc 120

caaagctcag gctaccccga gtgggcttca gccagagtga gtcggtctcc ggagaaggct 180

ctccaagtcc tgaggaggag gaagaaggca gtggggaagg ggcttccagt cgccggggta 240

gggtaagggt ccgcctgcct cgggtaggct tggcttcccc ttctaaagtc tctaagggac 300

aggagggtga tgcaacctcc aagtccccag ttggggagaa gtcacccaaa ttccgttttc 360

ctagggtgtc cttaagcccc aaggcccgga gtgggagtag ggaccgggaa gaaggtggat 420

tcagggtccg actgcccagt gtgggatttt cagaaacagc agttccaggt tccaccagga 480

ttgagggaac ccaggctgct gccatctgaa gccccaggac agctgtggat tccccctctt 540

gtctttccat tccccagcct agccccccat tttgtgtgtg acattactag cactaatcct 600

cagagggctt gaaggtgggt aactgactca ggcaggagcc agtggcctgt gccacctcat 660

tggccaaagt gcctgtatat catgtcaaac tatgggaata aaataattca a 711

<210> 35
<211> 239
<212> DNA
<213> Mouse

<220>
<221> misc_feature
<222> (1)..(239)
<223> n equals unknown

<400> 35
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cctcagaggg cttgaaggtg ggtaactgac tcaggcagga cccagtgccc tgtgccacct 180

cattggccta agtgcctgta tttcatgtca aactatggga ataaaataat tctaaagtt 239

<210> 36
<211> 290
<212> DNA
<213> Mouse

<400> 36
aacttcccca tgccccactt tccgacattc agacaccgca gttccacgtt ccaccagcac 60

agagggcacc cagggcgccc caatctggag ccccaggaca cctctggatt ccccctctag 120

tctttccatt ccccacccta ccccccccatt ttgtgtgtga cattactagc actattcctc 180

agagggcttg aaggtgggta actgactcag gcaggagcca gtggcctgtc ccacctcatt 240

gcccaaagtg cctgtatatc atgtcaaact atgggaataa aataattcaa 290

<210> 37
<211> 326
<212> DNA
<213> Mouse

<400> 37
accatacaaa gaataccctc ctggacgaac aagccttcac ggtccccccc cccaatctgc 60

gattttcagc cacaccagtt ccagttccac caggattgag ggaacccacc ctgctgcctt 120

atggatcccc aggacagttg tggattcccc cttttgtctt tccattcccc agccttcccc 180

cccattttgt gtgtgacatt actaccacta atcctcagag ggcttgaagg tgggtaactg 240

actcaggcag gacccagtgt cctgtgccac ctcattggcc aaagtgcctg tatttcatgt 300

caaactatgg gaataaaata attcaa 326

<210> 38
<211> 633
<212> DNA
<213> Mouse

<400> 38
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ccctcgcagg agctgagacg ggcggagttg gtggagatta tcgtggagac cgaggcacag 120

accggggtca gcggcttcaa cgtagcaggc ggcggcaaag aaggaatctt tgtccgtgag 180

ctgcgagagg actcaccggc agctaagagc ctcagcttgc aagaagggga ccagctgctg 240

agtgcccgtg tgttctttga gaacttcaaa tatgaggatg cacttcgcct gctgcaatgc 300

gcagagccct acaaagtctc cttctgcttg aagcgcactg tgcccaccgg ggatctggca 360

ctgaggcccg ggacggtgtc tggatacgag atgaagggcc cacgggccaa agtggccaag 420

ctgaacatcc agagtctggc ccctgtgaag aagaagaaga tggtgactgg ggccctgagg 480

acccctgcag atttggcccc tgttgacgtc gagttctctt tttccaagtt ctcccgactg 540

gcgtggggtc ttcaaagccg agctgtcaaa ggacctggtc cagctggccc aacccgtcgc 600

ccgcttcagc tgcctcgggt ttgggtccca gaa 633

<210> 39
<211> 488
<212> DNA
<213> Human

<400> 39
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gacaggagca ggcctccctg ccagccctgg tcagtcaccc acctcccggc cctcttaggg 120

ttagtgctag ttatcacaca cacaacagcg agggggtaga gaaaggaagg caagaaggga 180

tccccatctg actaggggct tcagacagcc gcagcctgag ccccctccat cctggccggg 240

cctggagccc ctgtctctga aaaccccacg ctgggcagcc gcacccgcaa tccaccctct 300

tcctggtccc cactcccact ccgggccttg gggcttaggg acaccctggg gaagcggaac 360

ttgggtgact tctctctgac gggggacatt ggggctgcat cgccctcctg cccccgagag 420

gctttagaag gggccgccag gcctacacgt ggcaagcgga cccggacccg gcccccggga 480

cccgaggc 488

<210> 40
<211> 372
<212> DNA
<213> Human

<400> 40
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gacaggagca ggcctccctg ccagccctgg tcagtcaccc acctcccggc cctcttaggg 120

ttagtgctag ttatcacaca cacaacagcg agggggtaga gaaaggaagg caagaaggga 180

tccccatctg actaggggct tcagacagcc gcagcctgag ccccccttcat tctgggccgg 240

ccttgaaccc ctggtttttg aaaacccaac cttggccagc cgaccccgaa atcaaccctt 300

ttcttggtcc caactcccac tccgggcctt ggggcttagg gacaccctgg ggaagcggaa 360

cttgggtgac tt 372

<210> 41
<211> 642
<212> DNA
<213> Mouse

<220>
<221> misc_feature
<222> (1)..(642)
<223> n equals unknown

<400> 41
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ggaaagacaa gaggggggaat ccacagctgt cctggggctt cagatggcag cagcctgggt 240

tccctcaatc ctggtggaac ctggaactgc tgtttctgaa aatcccacac tgggcagtcg 300

gaccctgaat ccaccttctt ccccgtcccc tacctccact cccggccttg ggggcttaag 360

gacaccccta gaaaacggga atttgggtga cttctcccca actggggact tggaggttgc 420

atcaccctcc tgtcccttag agactttaga aggggaagcc aagcctaccc gaagcaggcg 480

gacccttacc ctacccccgc gactggaagc cccttagcca ctgctcttcc tcctcctagg 540

actggaaagc cctcttcgag accgactacc ttggctgaaa cccactcggg gtagctgagc 600

ttgggatttt tacctttttt tcacttctat cctttcttgt cc 642

<210> 42
<211> 328
<212> DNA
<213> Mouse

<400> 42
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actttcaggg cccaaagctg tcaagggaga ggtggagggg cctgggcgag ccaccaagct 120

gaaggtttcc aagtttacca tctcacttcc caaagctcga gcagggactg aggccgaagc 180

gaagggagct ggggaagccg ggttgctgcc agccctggat ctgtccatcc cacagctcag 240

cctggatgcc cagctgccct caggcaaggt ggaagtagct gatagcaagc ctaaatcgtc 300

cagatttgct ctgcccaagt ttgggggt 328

<210> 43
<211> 564
<212> DNA
<213> Mycosphaerella graminicola

<400> 43
cgctcccggc tttgacaact cccgataccc cgacactctc gacccctaag cttccatctc 60

tcagcaccac tagcattaag ctgccgccgt tctctgctcc tacactcccg gcttttacga 120

tccctaacct cccgacactc tcgaccccta agcttccatc tctcagcacc actagcatta 180

agctgccgcc gttctctgct cctacactcc cggcctttac gatccctaac ctcccgatat 240

tctcgactcc taagcttcca tctcttagca ccaccagcat taagctgccg tcgctctctg 300

ctccgagcgc tccgtctctg agcaccacta gcatcaggtt gtcgtcattc tccgctccaa 360

gcctcccgac atttatctcg agcagcgtca acttgccgtc gttctcggct ccaagcctcc 420

cgggcctccc cacgttcacc acgagcagca tcaacttgcc gtcgttctcg gctccaagcc 480

tcccgggcct ccccacgttc accacgaaca gcgtcaactt gccgtcgttc tcgggtccaa 540

gcctcccggc cctccccacg ttca 564

<210> 44
<211> 238
<212> DNA
<213> Mouse

<220>
<221> misc_feature
<222> (1)..(238)
<223> n equals unknown

<400> 44
gaatgaggga acccagactt ntgccttttg aagcccccgg acagtcgtgg gttccccttc 60

tagtctttcc tttccccagc ctagcccccc attttgtgtg tgacattact agcactattc 120

ctcagagggt ttgaaggtgg gtaattgact caggcaggag ccagtggcct gtgccacctc 180

attggccaaa gtgcctgtat atcatgtcaa actatgggaa tgaaattatt caaaagtt 238

<210> 45
<211> 654
<212> DNA
<213> Mouse

<400> 45
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aaggctaaga gtccaaagct caggctaccc cgagtgagct tcagccagag tgagtcggtc 120

tccggagaag gctctccaag tcctgaggag gaggaagaag gcagtgggga aggggcttcc 180

agtcgccggg gtagggtaag ggtccgcctg cctcgggtag gcttggcttc cccttctaaa 240

gtctctaagg gacaggaggg tgatgcaacc tccaagtccc cagttgggga gaagtcaccc 300

aaattccgtt ttcctagggt gtccttaagc cccaaggccc ggagtgggag tagggaccgg 360

gaagaaggtg gattcagggt ccgactgccc agtgtgggat tttcagaaac agcagttcca 420

ggttccacca ggattgaggg aacccaggct gctgccattt gaagccccag gacagctgtg 480

gattcccccc cttgtctttc cattccccag cctggccccc cattttgtgt gtgacattac 540

tagcactaat cctcagaggg cttgaaggtg ggtaactgac tcaggcagga gccagtggcc 600

tgtgccacct cattggccaa agtgcctgta tatcatgtca aactatggga ataa 654

<210> 46
<211> 585
<212> DNA
<213> Zebrafish

<220>
<221> misc_feature
<222> (1)..(585)
<223> n equals unknown

<400> 46
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attaacgact ctgacagaga ggacaggggg gggaatccag aagccagagt ttcacctata 120

aacaacaaaa gacggtctcc cccctcagac aagcctccct ttggtcctca tccaagtaca 180

caccacagca tttccactga cgaacaggac agcccagaac ggattgttca gaaggaaaaa 240

ctccatgcag aactaaaaca agttttgagt cagaagagaa accagcttag agacacccaa 300

tccacttcca cagacatgga tgaaccatcc aggacagaca gtaaaaacga ggcggagaag 360

gatatgcagt tgtccgagct tgtggaagtg gttgttgaga ccgaggctga agttggagcc 420

agtggttaca gtgtggttgg tggaggggag cgaggcatct tcatcaaaga tgtcttaaaa 480

gactccccag cagcgaagca cctcagccta cagaaaggta ccaagggact gtattttaca 540

ttacaaagag caatgtcaaa tacactttan agacttgagc cactg 585

<210> 47
<211> 232
<212> DNA

<213> Human

<400> 47
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ccacgctggg cagccggacc cggaatccac ccttttgctg gtccccactc ccacttcggg 120

ccttgggggt gatggacacc ctggggaaac ggaacttggg tgaattcttt ttgacagggg 180

acttgtgggc tgcattcact tccttcgccc caaaagcttt aaaagggcca cc 232

<210> 48
<211> 418
<212> DNA
<213> Mouse

<400> 48
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tgaggtggca caggccactg gctcctgcct gagtcagtta cccaccttca agccctctga 120

ggattagtgc tagtaatgtc acacacaaaa tgggggggcta ggctggggaa tggaaagaca 180

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cctggtggaa cctggaactg ctgtttctga aaatcccaca ctgggcagtc ggaccctgaa 300

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aaaacggaat ttgggtgact tctccccaac tggggacttg gaggttgcat caccctcc 418

<210> 49
<211> 451
<212> DNA
<213> Human

<400> 49
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aggagcaggc ctccctgcca gccctggtca gtcacccacc tcccggccct cttagggtta 120

gtgctagtta tcacacacac aacagcgagg gggtagagaa aggaaggcaa gaagggatcc 180

ccatctgact aggggcttca gacagccgca gcctgagccc cctccatcct ggccgggcct 240

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tggtccccac tcccactccg ggccttgggg cttagggaca ccctggggaa gcggaacttg 360

ggtgacttct ctctgacggg ggacttgggg gctgcatcgc cctcctgccc ccgagaggct 420

ttagaagggg ccgccaggcc tacacgtggc a 451

<210> 50
<211> 498
<212> DNA
<213> Mouse

<400> 50
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ggtggcacag gccactggct cctgcctgag tcagttaccc accttcaagc cctctgagga 120

ttagtgctag taatgtcaca cacaaaatgg ggggctaggc tggggaatgg aaagacaaga 180

gggggaatcc acagctgtcc tggggcttca gatggcagca gcctgggttc cctcaatcct 240

ggtggaacct ggaactgctg tttctgaaaa tcccacactg ggcagtcgga ccctgaatcc 300

accttcttcc cggtccctac tcccactccg ggccttgggg cttaaggaca ccctaggaaa 360

acggaatttg ggtgacttct ccccaactgg agactttgag gttgcatcac cctcctgtcc 420

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tcggcgactg gaagcccc 498

<210> 51
<211> 409
<212> DNA
<213> Mouse

<400> 51
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aggggactcc gcagccttca ccagcatgag ccatccagag gagtcaacag aggtgacact 120

gaagactgac gtggagtcag gagccagtgg ctacagtgtc acaggtggag gggatcaggg 180

gatctttgtc aagcaagtac tgaaggactc gtcggctgca aagctgttca acctgagaga 240

aggagatcaa ctgcttagtg cgaccatatt ctttgaccat atgaaatatg aagatgctct 300

taaaatcctt cagtactcag aaccatacaa agttcagttc agaatcaaac ggaaactctc 360

ggccagcaag ggagaggaag gggctgttca gcattcgcag caaggccag 409

<210> 52
<211> 356
<212> DNA
<213> Mouse

<400> 52
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aagagaagaa ggaggggcgg gctcctggca aggcgtttgc tcctgagcag agtcctgcaa 120

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gcggcttcaa tgtagcaggc ggcggcaaag aaggaatctt tgtccgcgag ctgcgagagg 420

actcaccggc cgccaagagc ctcagtttgc aggaagggga ccaacttctg agcgcccgtg 480

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atttggcccc tgttgacgtc gagttctctt ttcccaagtt ctcccgattg cgtcggggcc 780

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<210> 78
<211> 370
<212> PRT
<213> Arabidopsisthaliana

<400> 78

Met Ala Leu Met Lys Lys Ser Leu Ser Ala Ala Leu Leu Ser Ser Pro
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Leu Leu Ile Ile Cys Leu Ile Ala Leu Leu Ala Asp Pro Phe Ser Val
20 25 30

Gly Ala Arg Arg Leu Leu Glu Asp Pro Lys Pro Glu Ile Pro Lys Leu
35 40 45

Pro Glu Leu Pro Lys Phe Glu Val Pro Lys Leu Pro Glu Phe Pro Lys
50 55 60

```
Pro Glu Leu Pro Lys Leu Pro Glu Phe Pro Lys Pro Glu Leu Pro Lys
65                  70                  75                  80

Ile Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Val Pro Glu Ile Pro
                85                  90                  95

Lys Pro Glu Glu Thr Lys Leu Pro Asp Ile Pro Lys Leu Glu Leu Pro
            100                 105                 110

Lys Phe Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Met Pro Glu Ile
        115                 120                 125

Pro Lys Pro Glu Leu Pro Lys Val Pro Glu Ile Gln Lys Pro Glu Leu
    130                 135                 140

Pro Lys Met Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Phe Pro Glu
145                 150                 155                 160

Ile Pro Lys Pro Asp Leu Pro Lys Phe Pro Glu Asn Ser Lys Pro Glu
                165                 170                 175

Val Pro Lys Leu Met Glu Thr Glu Lys Pro Glu Ala Pro Lys Val Pro
            180                 185                 190

Glu Ile Pro Lys Pro Glu Leu Pro Lys Leu Pro Glu Val Pro Lys Leu
        195                 200                 205

Glu Ala Pro Lys Val Pro Glu Ile Gln Lys Pro Glu Leu Pro Lys Met
    210                 215                 220

Pro Glu Leu Pro Lys Met Pro Glu Ile Gln Lys Pro Glu Leu Pro Lys
225                 230                 235                 240

Leu Pro Glu Val Pro Lys Leu Glu Ala Pro Lys Val Pro Glu Ile Gln
                245                 250                 255

Lys Pro Glu Leu Pro Lys Met Pro Glu Leu Pro Lys Met Pro Glu Ile
            260                 265                 270

Gln Lys Pro Glu Leu Pro Lys Met Pro Glu Ile Gln Lys Pro Glu Leu
        275                 280                 285

Pro Lys Val Pro Glu Val Pro Lys Pro Glu Leu Pro Thr Val Pro Glu
    290                 295                 300
```

```
Val Pro Lys Ser Glu Ala Pro Lys Phe Pro Glu Ile Pro Lys Pro Glu
305                 310                 315                 320

Leu Pro Lys Ile Pro Glu Val Pro Lys Pro Glu Leu Pro Lys Val Pro
                325                 330                 335

Glu Ile Thr Lys Pro Ala Val Pro Glu Ile Pro Lys Pro Glu Leu Pro
            340                 345                 350

Thr Met Pro Gln Leu Pro Lys Leu Pro Glu Phe Pro Lys Val Pro Gly
        355                 360                 365

Thr Pro
    370
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<210> 79
<211> 1389
<212> PRT
<213> Rat

<400> 79

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Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1               5                   10                  15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Phe
            20                  25                  30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
        35                  40                  45

Glu Asp Ser Pro Ala Ala Lys Ser Leu Ser Leu Gln Glu Gly Asp Gln
    50                  55                  60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65                  70                  75                  80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
                85                  90                  95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
            100                 105                 110

Ser Gly Tyr Glu Met Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Asn
        115                 120                 125

Ile Gln Ser Leu Ser Pro Val Lys Lys Lys Lys Met Val Ile Gly Thr
    130                 135                 140
```

```
Leu Gly Thr Pro Ala Asp Leu Ala Pro Val Asp Val Glu Phe Ser Phe
145                 150                 155                 160

Pro Lys Phe Ser Arg Leu Arg Arg Gly Leu Lys Ala Asp Ala Val Lys
                165                 170                 175

Gly Pro Val Pro Ala Ala Pro Ala Arg Arg Arg Leu Gln Leu Pro Arg
            180                 185                 190

Leu Arg Val Arg Glu Val Ala Glu Glu Ala Gln Val Ala Arg Met Ala
        195                 200                 205

Ala Ala Ala Pro Pro Ser Arg Lys Ala Lys Ser Glu Ala Glu Val Ala
    210                 215                 220

Thr Gly Ala Gly Phe Thr Ala Pro Gln Ile Glu Leu Val Gly Pro Arg
225                 230                 235                 240

Leu Pro Ser Ala Glu Val Gly Val Pro Lys Val Ser Val Pro Lys Gly
                245                 250                 255

Thr Pro Ser Thr Glu Ala Ala Ser Gly Phe Ala Leu His Leu Pro Thr
            260                 265                 270

Leu Gly Leu Gly Ala Pro Ala Ala Pro Ala Val Glu Pro Pro Thr Thr
        275                 280                 285

Gly Ile Gln Val Pro Gln Val Glu Leu Pro Thr Leu Pro Ser Leu Pro
    290                 295                 300

Thr Leu Pro Thr Leu Pro Cys Leu Asp Thr Gln Glu Gly Ala Ala Val
305                 310                 315                 320

Val Lys Val Pro Thr Leu Asp Val Ala Ala Pro Ser Val Glu Val Asp
                325                 330                 335

Leu Ala Leu Pro Gly Ala Glu Val Glu Ala Gln Gly Glu Val Pro Glu
            340                 345                 350

Val Ala Leu Lys Met Pro Arg Leu Ser Phe Pro Arg Phe Gly Val Arg
        355                 360                 365

Gly Lys Glu Ala Thr Glu Ala Lys Val Val Lys Gly Ser Pro Glu Ala
    370                 375                 380
```

```
Lys Ala Lys Gly Pro Arg Leu Arg Met Pro Thr Phe Gly Leu Ser Leu
385                 390                 395                 400

Leu Glu Ser Arg Pro Ser Gly Pro Glu Val Ala Ala Glu Ser Lys Leu
                405                 410                 415

Lys Leu Pro Thr Leu Lys Met Pro Ser Phe Gly Ile Ser Val Ala Gly
            420                 425                 430

Pro Glu Val Lys Ala Pro Lys Gly Pro Glu Val Lys Leu Pro Lys Val
        435                 440                 445

Pro Glu Ile Lys Leu Pro Lys Ala Pro Glu Ala Ala Ile Pro Asp Val
    450                 455                 460

Gln Leu Pro Glu Val Gln Leu Pro Lys Met Ser Asp Met Lys Leu Pro
465                 470                 475                 480

Lys Ile Pro Glu Met Ala Val Pro Asp Val His Leu Pro Glu Val Lys
                485                 490                 495

Leu Pro Lys Val Pro Glu Met Lys Val Pro Glu Met Lys Leu Pro Lys
            500                 505                 510

Ile Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Ile Gln Leu
        515                 520                 525

Pro Lys Val Pro Glu Met Lys Leu Pro Asp Met Lys Leu Pro Lys Val
    530                 535                 540

Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Ile Gln Leu Pro
545                 550                 555                 560

Lys Val Pro Glu Met Lys Leu Pro Asp Met Lys Leu Pro Lys Val Pro
                565                 570                 575

Glu Met Ala Val Pro Asp Val Arg Ile Pro Glu Val Gln Leu Pro Lys
            580                 585                 590

Val Ser Glu Val Lys Leu Pro Lys Ile Pro Asp Met Ala Val Pro Asp
        595                 600                 605

Val Arg Leu Pro Glu Leu Gln Leu Pro Lys Met Ser Glu Val Lys Leu
    610                 615                 620
```

```
Pro Lys Ile Pro Asp Met Ala Val Pro Asp Val Arg Leu Pro Glu Val
625                 630                 635                 640

Gln Leu Pro Lys Val Ser Glu Leu Lys Leu Pro Lys Val Pro Glu Met
                645                 650                 655

Thr Met Pro Asp Ile Arg Leu Pro Glu Val Gln Leu Pro Lys Val Pro
            660                 665                 670

Asp Ile Lys Leu Pro Glu Ile Lys Leu Pro Lys Val Pro Glu Met Ala
        675                 680                 685

Val Pro Asp Val Pro Leu Pro Glu Leu Gln Leu Pro Lys Val Pro Gln
    690                 695                 700

Val Pro Asp Val His Leu Pro Lys Val Pro Glu Met Lys Leu Pro Lys
705                 710                 715                 720

Val Pro Glu Ala Gln Arg Lys Ser Ala Gly Ala Glu Gln Ala Glu Lys
                725                 730                 735

Thr Glu Phe Ser Phe Lys Leu Pro Lys Met Thr Val Pro Lys Leu Gly
            740                 745                 750

Lys Val Thr Lys Pro Gly Glu Ala Gly Ile Glu Val Pro Asp Lys Leu
        755                 760                 765

Leu Ile Leu Pro Cys Leu Gln Pro Glu Val Gly Thr Glu Val Ala Arg
    770                 775                 780

Val Gly Val Pro Ser Leu Ser Leu Pro Ser Val Glu Leu Asp Leu Pro
785                 790                 795                 800

Gly Ala Leu Gly Leu Glu Gly Gln Val Gln Glu Ala Val Ser Gly Lys
                805                 810                 815

Val Glu Lys Pro Glu Gly Pro Arg Val Ala Val Gly Thr Gly Glu Ala
            820                 825                 830

Gly Phe Arg Val Pro Ser Val Glu Ile Val Asn Pro Gln Leu Pro Thr
        835                 840                 845

Val Glu Val Lys Lys Glu Gln Leu Glu Met Val Glu Met Lys Val Lys
    850                 855                 860

Pro Thr Ser Lys Phe Ser Leu Pro Lys Phe Gly Leu Ser Gly Pro Lys
```

865 870 875 880

Ala Val Lys Ala Glu Val Glu Gly Pro Gly Arg Ala Thr Lys Leu Lys
885 890 895

Val Ser Lys Phe Ala Ile Ser Leu Pro Arg Ala Arg Ala Gly Thr Asp
900 905 910

Ala Asp Ala Lys Gly Ala Gly Glu Ala Gly Leu Leu Pro Ala Leu Asp
915 920 925

Leu Ser Ile Pro Gln Leu Ser Leu Asp Ala Gln Leu Pro Ser Gly Lys
930 935 940

Val Glu Val Ala Gly Ala Glu Ser Lys Pro Lys Gly Ser Arg Phe Ala
945 950 955 960

Leu Pro Lys Phe Gly Ala Lys Gly Arg Asp Ser Glu Ala Asp Val Leu
965 970 975

Val Ala Gly Glu Ala Glu Leu Glu Gly Lys Gly Trp Gly Trp Asp Gly
980 985 990

Lys Val Lys Met Pro Lys Leu Lys Met Pro Ser Phe Gly Leu Ser Arg
995 1000 1005

Gly Lys Glu Ala Glu Ile Gln Asp Gly Arg Val Ser Pro Gly Glu
1010 1015 1020

Lys Leu Glu Ala Ile Ala Gly Gln Leu Lys Ile Pro Glu Val Glu
1025 1030 1035

Leu Val Thr Pro Gly Ala Gln Glu Thr Glu Lys Val Thr Ser Gly
1040 1045 1050

Val Lys Pro Ser Gly Leu Gln Val Ser Thr Thr Arg Gln Val Val
1055 1060 1065

Ala Glu Gly Gln Glu Gly Ala Gln Arg Val Ser Ser Leu Gly Ile
1070 1075 1080

Ser Leu Pro Gln Val Glu Leu Ala Ser Phe Gly Glu Ala Gly Pro
1085 1090 1095

Glu Ile Ala Ala Pro Ser Ala Glu Gly Thr Val Gly Ser Arg Ile
1100 1105 1110

```
Gln Val  Pro Gln Val Met Leu  Glu Leu Pro Gly Thr  Gln Val Ala
    1115                 1120                 1125

Gly Gly  Asp Leu Leu Val Gly  Glu Gly Ile Phe Lys  Met Pro Thr
    1130                 1135                 1140

Val Thr  Val Pro Gln Leu Glu  Leu Asp Val Gly Leu  Gly His Glu
    1145                 1150                 1155

Ala Gln  Ala Gly Glu Thr Ala  Lys Ser Glu Gly Gly  Leu Lys Leu
    1160                 1165                 1170

Lys Leu  Pro Thr Leu Gly Ala  Gly Gly Lys Gly Glu  Gly Ala Glu
    1175                 1180                 1185

Ala Gln  Ser Pro Glu Ala Gln  His Thr Phe His Ile  Ser Leu Pro
    1190                 1195                 1200

Asp Val  Glu Leu Thr Ser Pro  Val Ser Ser His Ala  Glu Tyr Gln
    1205                 1210                 1215

Val Val  Glu Gly Asp Gly Asp  Gly Gly His Lys Leu  Lys Val Arg
    1220                 1225                 1230

Leu Pro  Leu Phe Gly Leu Ala  Arg Ala Lys Glu Gly  Ile Glu Thr
    1235                 1240                 1245

Gly Glu  Lys Val Lys Ser Pro  Lys Leu Arg Leu Pro  Arg Val Gly
    1250                 1255                 1260

Phe Ser  Gln Ser Glu Ser Ala  Ser Gly Glu Gly Ser  Pro Ser Pro
    1265                 1270                 1275

Glu Glu  Glu Glu Glu Gly Ser  Gly Glu Gly Ala Ser  Gly Arg Arg
    1280                 1285                 1290

Gly Arg  Val Arg Val Arg Leu  Pro Arg Val Gly Leu  Ala Ser Pro
    1295                 1300                 1305

Ser Lys  Gly Ser Lys Gly Gln  Glu Gly Asp Ala Ala  Ser Lys Ser
    1310                 1315                 1320

Pro Val  Gly Glu Lys Ser Pro  Lys Phe Arg Phe Pro  Arg Val Ser
    1325                 1330                 1335
```

```
Leu Ser  Pro Lys Ala Arg Ser  Gly Ser Lys Asp Arg  Glu Glu Gly
    1340                1345                1350

Gly Phe  Arg Val Arg Leu Pro  Ser Val Gly Pro Thr  Ala Gln Cys
    1355                1360                1365

Gly Ile  Phe Arg Asn Ser Ser  Ser Ser Ser Ala Arg  Ile Glu Gly
    1370                1375                1380

Thr Gln  Ala Ala Ala Ile
    1385
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<210> 80
<211> 148
<212> PRT
<213> Mouse

<400> 80

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Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1               5                   10                  15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Phe
            20                  25                  30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
        35                  40                  45

Glu Asp Ser Pro Ala Ala Lys Ser Leu Ser Leu Gln Glu Gly Asp Gln
    50                  55                  60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65                  70                  75                  80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
                85                  90                  95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
            100                 105                 110

Ser Gly Tyr Glu Met Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Val
        115                 120                 125

Arg Val Leu Ser Pro Val Pro Val Gln Asp Ser Pro Ser Asp Arg Val
    130                 135                 140

Ala Ala Ala Pro
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145

<210> 81
<211> 377
<212> PRT
<213> Caenorhabditiselegans

<400> 81

Met Ser Val Phe Arg Phe Leu Leu Phe Leu Ser Leu Leu Val Gly Ser
1 5 10 15

Asn Ala Phe Val Lys Pro Gln Tyr Asn Val Thr Gly Gln Ile Asp Ser
20 25 30

Ala Leu Gln Arg Phe Phe Gly Ile Thr Leu Pro Ser Leu Lys Ile Pro
35 40 45

Asp Leu Leu Asn Pro Asp Lys Lys Arg Asn Pro Pro Ser Val Gly Gln
50 55 60

Leu Lys Lys Thr Ser Phe Pro Leu Cys Asn Val Asn Leu Pro Pro Ile
65 70 75 80

Phe Phe Thr Ile Ser Leu Phe Arg Ile Lys Leu Pro Asn Leu Ile Pro
85 90 95

Thr Ala Leu Pro Val Ile Lys Leu Pro Thr Ile Lys Ile Pro Asn Ile
100 105 110

Leu Pro Thr Leu Pro Thr Ile Lys Val Pro Thr Ile Lys Ile Pro Asp
115 120 125

Ile Ile Pro Ile Thr Leu Pro Thr Ile Lys Ile Pro Glu Val Val Pro
130 135 140

Thr Asn Leu Pro Thr Val Glu Ile Pro His Phe Ile Pro Lys Thr Leu
145 150 155 160

Pro Thr Val Lys Ile Pro Asn Ile Ile Pro Thr Asn Phe Pro Thr Ile
165 170 175

Glu Thr Pro Asp Ile Ile Pro Lys Ile Leu Pro Thr Ile Lys Ile Pro
180 185 190

Glu Ile Ile Pro Leu Thr Leu Pro Thr Val Lys Ile Pro Asp Ile Ile
195 200 205

Pro Ile Thr Leu Pro Thr Ile Lys Ile Pro Glu Ile Val Pro Thr Lys
210 215 220

Leu Pro Thr Val Glu Val Pro Asp Thr Ile Pro Lys Thr Leu Pro Thr
225 230 235 240

Thr Lys Ile Pro Asp Ile Val Pro Ile Thr Ser Pro Thr Val Lys Ile
245 250 255

Pro Gln Ile Ile Pro Thr Ile Lys Ile Pro Asp Ile Ile Pro Lys Asn
260 265 270

Leu Ser Thr Leu Gly Pro Ile Lys Leu Pro Thr Ile Lys Leu Pro Thr
275 280 285

Gly Asn Met Val Cys Asp Ile Cys Glu Lys Val Ile Gly Val Leu Thr
290 295 300

Thr Arg Leu Leu Glu Ile Ile Gln Lys Phe Arg Val Glu Ala Asp Lys
305 310 315 320

Phe Leu Thr Lys Leu Cys Thr Ser Leu Thr Ser Asn Pro Lys Thr Leu
325 330 335

Thr Val Gly Thr Met Cys Val Met Phe Lys Gly Asn Ile Met Asp Thr
340 345 350

Ile Phe Lys Gly Phe Asp Gly Leu Lys Lys Asn Leu Glu Pro Val Ser
355 360 365

Phe Cys Lys His Val Pro Phe Cys Lys
370 375

<210> 82
<211> 1383
<212> PRT
<213> Rat

<400> 82

Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1 5 10 15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Phe
20 25 30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg

```
        35                  40                  45

Glu Asp Ser Pro Ala Ala Lys Ser Leu Ser Leu Gln Glu Gly Asp Gln
    50                  55                  60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65                  70                  75                  80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
            85                  90                  95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
        100                 105                 110

Ser Gly Tyr Glu Met Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Asn
    115                 120                 125

Ile Gln Ser Leu Ser Pro Val Lys Lys Lys Lys Met Val Ile Gly Thr
130                 135                 140

Leu Gly Thr Pro Ala Asp Leu Ala Pro Val Asp Val Glu Phe Ser Phe
145                 150                 155                 160

Pro Lys Phe Ser Arg Leu Arg Arg Gly Leu Lys Ala Asp Ala Val Lys
                165                 170                 175

Gly Pro Val Pro Ala Ala Pro Ala Arg Arg Arg Leu Gln Leu Pro Arg
        180                 185                 190

Leu Arg Val Arg Glu Val Ala Glu Glu Ala Gln Val Ala Arg Met Ala
    195                 200                 205

Ala Ala Ala Pro Pro Ser Arg Lys Ala Lys Ser Glu Ala Glu Val Ala
210                 215                 220

Thr Gly Ala Gly Phe Thr Ala Pro Gln Ile Glu Leu Val Gly Pro Arg
225                 230                 235                 240

Leu Pro Ser Ala Glu Val Gly Val Pro Lys Val Ser Val Pro Lys Gly
                245                 250                 255

Thr Pro Ser Thr Glu Ala Ala Ser Gly Phe Ala Leu His Leu Pro Thr
        260                 265                 270

Leu Gly Leu Gly Ala Pro Ala Ala Pro Ala Val Glu Pro Pro Thr Thr
    275                 280                 285
```

```
Gly Ile Gln Val Pro Gln Val Glu Leu Pro Thr Leu Pro Ser Leu Pro
    290                 295                 300

Thr Leu Pro Thr Leu Pro Cys Leu Asp Thr Gln Glu Gly Ala Ala Val
305                 310                 315                 320

Val Lys Val Pro Thr Leu Asp Val Ala Ala Pro Ser Val Glu Val Asp
                325                 330                 335

Leu Ala Leu Pro Gly Ala Glu Val Glu Ala Gln Gly Glu Val Pro Glu
            340                 345                 350

Val Ala Leu Lys Met Pro Arg Leu Ser Phe Pro Arg Phe Gly Val Arg
        355                 360                 365

Gly Lys Glu Ala Thr Glu Ala Lys Val Val Lys Gly Ser Pro Glu Ala
    370                 375                 380

Lys Ala Lys Gly Pro Arg Leu Arg Met Pro Thr Phe Gly Leu Ser Leu
385                 390                 395                 400

Leu Glu Ser Arg Pro Ser Gly Pro Glu Val Ala Ala Glu Ser Lys Leu
                405                 410                 415

Lys Leu Pro Thr Leu Lys Met Pro Ser Phe Gly Ile Ser Val Ala Gly
            420                 425                 430

Pro Glu Val Lys Ala Pro Lys Gly Pro Glu Val Lys Leu Pro Lys Val
        435                 440                 445

Pro Glu Ile Lys Leu Pro Lys Ala Pro Glu Ala Ala Ile Pro Asp Val
    450                 455                 460

Gln Leu Pro Glu Val Gln Leu Pro Lys Met Ser Asp Met Lys Leu Pro
465                 470                 475                 480

Lys Ile Pro Glu Met Ala Val Pro Asp Val His Leu Pro Glu Val Lys
                485                 490                 495

Leu Pro Lys Val Pro Glu Met Lys Val Pro Glu Met Lys Leu Pro Lys
            500                 505                 510

Ile Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Ile Gln Leu
        515                 520                 525
```

```
Pro Lys Val Pro Glu Met Lys Leu Pro Asp Met Lys Leu Pro Lys Val
    530                 535                 540

Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Ile Gln Leu Pro
545                 550                 555                 560

Lys Val Pro Glu Met Lys Leu Pro Asp Met Lys Leu Pro Lys Val Pro
                565                 570                 575

Glu Met Ala Val Pro Asp Val Arg Ile Pro Glu Val Gln Leu Pro Lys
            580                 585                 590

Val Ser Glu Val Lys Leu Pro Lys Ile Pro Asp Met Ala Val Pro Asp
        595                 600                 605

Val Arg Leu Pro Glu Leu Gln Leu Pro Lys Met Ser Glu Val Lys Leu
    610                 615                 620

Pro Lys Ile Pro Asp Met Ala Val Pro Asp Val Arg Leu Pro Glu Val
625                 630                 635                 640

Gln Leu Pro Lys Val Ser Glu Leu Lys Leu Pro Lys Val Pro Glu Met
                645                 650                 655

Thr Met Pro Asp Ile Arg Leu Pro Glu Val Gln Leu Pro Lys Val Pro
            660                 665                 670

Asp Ile Lys Leu Pro Glu Ile Lys Leu Pro Lys Val Pro Glu Met Ala
        675                 680                 685

Val Pro Asp Val Pro Leu Pro Glu Leu Gln Leu Pro Lys Val Pro Gln
    690                 695                 700

Val Pro Asp Val His Leu Pro Lys Val Pro Glu Met Lys Leu Pro Lys
705                 710                 715                 720

Val Pro Glu Ala Gln Arg Lys Ser Ala Gly Ala Glu Gln Ala Glu Lys
                725                 730                 735

Thr Glu Phe Ser Phe Lys Leu Pro Lys Met Thr Val Pro Lys Leu Gly
            740                 745                 750

Lys Val Thr Lys Pro Gly Glu Ala Gly Ile Glu Val Pro Asp Lys Leu
        755                 760                 765
```

```
Leu Ile Leu Pro Cys Leu Gln Pro Glu Val Gly Thr Glu Val Ala Arg
    770                 775                 780

Val Gly Val Pro Ser Leu Ser Leu Pro Ser Val Glu Leu Asp Leu Pro
785                 790                 795                 800

Gly Ala Leu Gly Leu Glu Gly Gln Val Gln Glu Ala Val Ser Gly Lys
                805                 810                 815

Val Glu Lys Pro Glu Gly Pro Arg Val Ala Val Gly Thr Gly Glu Ala
            820                 825                 830

Gly Phe Arg Val Pro Ser Val Glu Ile Val Asn Pro Gln Leu Pro Thr
        835                 840                 845

Val Glu Val Lys Lys Glu Gln Leu Glu Met Val Glu Met Lys Val Lys
    850                 855                 860

Pro Thr Ser Lys Phe Ser Leu Pro Lys Phe Gly Leu Ser Gly Pro Lys
865                 870                 875                 880

Ala Val Lys Ala Glu Val Glu Gly Pro Gly Arg Ala Thr Lys Leu Lys
                885                 890                 895

Val Ser Lys Phe Ala Ile Ser Leu Pro Arg Ala Arg Ala Gly Thr Asp
            900                 905                 910

Ala Asp Ala Lys Gly Ala Gly Glu Ala Gly Leu Leu Pro Ala Leu Asp
        915                 920                 925

Leu Ser Ile Pro Gln Leu Ser Leu Asp Ala Gln Leu Pro Ser Gly Lys
    930                 935                 940

Val Glu Val Ala Gly Ala Glu Ser Lys Pro Lys Gly Ser Arg Phe Ala
945                 950                 955                 960

Leu Pro Lys Phe Gly Ala Lys Gly Arg Asp Ser Glu Ala Asp Val Leu
                965                 970                 975

Val Ala Gly Glu Ala Glu Leu Glu Gly Lys Gly Trp Gly Trp Asp Gly
            980                 985                 990

Lys Val Lys Met Pro Lys Leu Lys  Met Pro Ser Phe Gly  Leu Ser Arg
        995                 1000                1005

Gly Lys  Glu Ala Glu Ile Gln  Asp Gly Arg Val Ser  Pro Gly Glu
```

1010 1015 1020

Lys Leu Glu Ala Ile Ala Gly Gln Leu Lys Ile Pro Glu Val Glu
1025 1030 1035

Leu Val Thr Pro Gly Ala Gln Glu Thr Glu Lys Val Thr Ser Gly
1040 1045 1050

Val Lys Pro Ser Gly Leu Gln Val Ser Thr Thr Arg Gln Val Val
1055 1060 1065

Ala Glu Gly Gln Glu Gly Ala Gln Arg Val Ser Ser Leu Gly Ile
1070 1075 1080

Ser Leu Pro Gln Val Glu Leu Ala Ser Phe Gly Glu Ala Gly Pro
1085 1090 1095

Glu Ile Ala Ala Pro Ser Ala Glu Gly Thr Val Gly Ser Arg Ile
1100 1105 1110

Gln Val Pro Gln Val Met Leu Glu Leu Pro Gly Thr Gln Val Ala
1115 1120 1125

Gly Gly Asp Leu Leu Val Gly Glu Gly Ile Phe Lys Met Pro Thr
1130 1135 1140

Val Thr Val Pro Gln Leu Glu Leu Asp Val Gly Leu Gly His Glu
1145 1150 1155

Ala Gln Ala Gly Glu Thr Ala Lys Ser Glu Gly Gly Leu Lys Leu
1160 1165 1170

Lys Leu Pro Thr Leu Gly Ala Gly Gly Lys Gly Glu Gly Ala Glu
1175 1180 1185

Ala Gln Ser Pro Glu Ala Gln His Thr Phe His Ile Ser Leu Pro
1190 1195 1200

Asp Val Glu Leu Thr Ser Pro Val Ser Ser His Ala Glu Tyr Gln
1205 1210 1215

Val Val Glu Gly Asp Gly Asp Gly Gly His Lys Leu Lys Val Arg
1220 1225 1230

Leu Pro Leu Phe Gly Leu Ala Arg Ala Lys Glu Gly Ile Glu Thr
1235 1240 1245

```
Gly Glu  Lys Val Lys Ser Pro  Lys Leu Arg Leu Pro  Arg Val Gly
    1250                 1255                 1260

Phe Ser  Gln Ser Glu Ser Ala  Ser Gly Glu Gly Ser  Pro Ser Pro
    1265                 1270                 1275

Glu Glu  Glu Glu Glu Gly Ser  Gly Glu Gly Ala Ser  Gly Arg Arg
    1280                 1285                 1290

Gly Arg  Val Arg Val Arg Leu  Pro Arg Val Gly Leu  Ala Ser Pro
    1295                 1300                 1305

Ser Lys  Gly Ser Lys Gly Gln  Glu Gly Asp Ala Ala  Ser Lys Ser
    1310                 1315                 1320

Pro Val  Gly Glu Lys Ser Pro  Lys Phe Arg Phe Pro  Arg Val Ser
    1325                 1330                 1335

Leu Ser  Pro Lys Ala Arg Ser  Gly Ser Lys Asp Arg  Glu Glu Gly
    1340                 1345                 1350

Gly Phe  Arg Val Arg Leu Pro  Ser Val Gly Phe Ser  Glu Thr Ala
    1355                 1360                 1365

Ala Pro  Gly Ser Ala Arg Ile  Glu Gly Thr Gln Ala  Ala Ala Ile
    1370                 1375                 1380
```

<210> 83
<211> 370
<212> PRT
<213> Arabidopsisthaliana

<400> 83

```
Met Ala Leu Met Lys Lys Ser Leu Ser Ala Ala Leu Leu Ser Ser Pro
1               5                  10                  15

Leu Leu Ile Ile Cys Leu Ile Ala Leu Leu Ala Asp Pro Phe Ser Val
            20                  25                  30

Gly Ala Arg Arg Leu Leu Glu Asp Pro Lys Pro Glu Ile Pro Lys Leu
        35                  40                  45

Pro Glu Leu Pro Lys Phe Glu Val Pro Lys Leu Pro Glu Phe Pro Lys
    50                  55                  60
```

```
Pro Glu Leu Pro Lys Leu Pro Glu Phe Pro Lys Pro Glu Leu Pro Lys
65                  70                  75                  80

Ile Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Val Pro Glu Ile Pro
                85                  90                  95

Lys Pro Glu Glu Thr Lys Leu Pro Asp Ile Pro Lys Leu Glu Leu Pro
            100                 105                 110

Lys Phe Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Met Pro Glu Ile
        115                 120                 125

Pro Lys Pro Glu Leu Pro Lys Val Pro Glu Ile Gln Lys Pro Glu Leu
    130                 135                 140

Pro Lys Met Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Phe Pro Glu
145                 150                 155                 160

Ile Pro Lys Pro Asp Leu Pro Lys Phe Pro Glu Asn Ser Lys Pro Glu
                165                 170                 175

Val Pro Lys Leu Met Glu Thr Glu Lys Pro Glu Ala Pro Lys Val Pro
            180                 185                 190

Glu Ile Pro Lys Pro Glu Leu Pro Lys Leu Pro Glu Val Pro Lys Leu
        195                 200                 205

Glu Ala Pro Lys Val Pro Glu Ile Gln Lys Pro Glu Leu Pro Lys Met
    210                 215                 220

Pro Glu Leu Pro Lys Met Pro Glu Ile Gln Lys Pro Glu Leu Pro Lys
225                 230                 235                 240

Leu Pro Glu Val Pro Lys Leu Glu Ala Pro Lys Val Pro Glu Ile Gln
                245                 250                 255

Lys Pro Glu Leu Pro Lys Met Pro Glu Leu Pro Lys Met Pro Glu Ile
            260                 265                 270

Gln Lys Pro Glu Leu Pro Lys Met Pro Glu Ile Gln Lys Pro Glu Leu
        275                 280                 285

Pro Lys Val Pro Glu Val Pro Lys Pro Glu Leu Pro Thr Val Pro Glu
    290                 295                 300

Val Pro Lys Ser Glu Ala Pro Lys Phe Pro Glu Ile Pro Lys Pro Glu
```

305 310 315 320

Leu Pro Lys Ile Pro Glu Val Pro Lys Pro Glu Leu Pro Lys Val Pro
325 330 335

Glu Ile Thr Lys Pro Ala Val Pro Glu Ile Pro Lys Pro Glu Leu Pro
340 345 350

Thr Met Pro Gln Leu Pro Lys Leu Pro Glu Phe Pro Lys Val Pro Gly
355 360 365

Thr Pro
370

<210> 84
<211> 148
<212> PRT
<213> Mouse

<400> 84

Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1 5 10 15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Phe
20 25 30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
35 40 45

Glu Asp Ser Pro Ala Ala Lys Ser Leu Ser Leu Gln Glu Gly Asp Gln
50 55 60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65 70 75 80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
85 90 95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
100 105 110

Ser Gly Tyr Glu Met Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Val
115 120 125

Arg Val Leu Ser Pro Val Pro Val Gln Asp Ser Pro Ser Asp Arg Val
130 135 140

Ala Ala Ala Pro
145

<210> 85
<211> 1391
<212> PRT
<213> Mouse

<400> 85

Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1 5 10 15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Phe
20 25 30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
35 40 45

Glu Asp Ser Pro Ala Ala Lys Ser Leu Ser Leu Gln Glu Gly Asp Gln
50 55 60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65 70 75 80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
85 90 95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
100 105 110

Ser Gly Tyr Glu Met Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Asn
115 120 125

Ile Gln Ser Leu Ala Pro Val Lys Lys Lys Lys Met Val Thr Gly Ala
130 135 140

Leu Gly Thr Pro Ala Asp Leu Ala Pro Val Asp Val Glu Phe Ser Phe
145 150 155 160

Pro Lys Phe Ser Arg Leu Arg Arg Gly Leu Lys Ala Glu Ala Val Lys
165 170 175

Gly Pro Val Pro Ala Ala Pro Ala Arg Arg Arg Leu Gln Leu Pro Arg
180 185 190

Leu Arg Val Arg Glu Val Ala Glu Glu Ala Gln Val Ala Arg Met Ala

```
        195                 200                 205

Ala Ala Ala Pro Pro Pro Arg Lys Ala Lys Ala Glu Ala Glu Ala Ala
    210                 215                 220

Thr Gly Ala Gly Phe Thr Ala Pro Gln Ile Glu Leu Val Gly Pro Arg
225                 230                 235                 240

Leu Pro Ser Ala Glu Val Gly Val Pro Gln Val Ser Val Pro Lys Gly
                245                 250                 255

Thr Pro Ser Thr Glu Ala Ala Ser Gly Phe Ala Leu His Leu Pro Thr
            260                 265                 270

Leu Gly Leu Gly Ala Pro Ala Ala Pro Ala Val Glu Pro Pro Ala Thr
        275                 280                 285

Gly Ile Gln Val Pro Gln Val Glu Leu Pro Thr Leu Pro Ser Leu Pro
    290                 295                 300

Thr Leu Pro Thr Leu Pro Cys Leu Asp Thr Gln Glu Gly Ala Ala Val
305                 310                 315                 320

Val Lys Val Pro Thr Leu Asp Val Ala Ala Pro Ser Met Gly Val Asp
                325                 330                 335

Leu Ala Leu Pro Gly Ala Glu Val Glu Ala Gln Gly Glu Val Pro Glu
            340                 345                 350

Val Ala Leu Lys Met Pro Arg Leu Ser Phe Pro Arg Phe Gly Ile Arg
        355                 360                 365

Gly Lys Glu Ala Thr Glu Ala Lys Val Val Lys Gly Ser Pro Glu Ala
    370                 375                 380

Lys Ala Lys Gly Pro Arg Leu Arg Met Pro Thr Phe Gly Leu Ser Leu
385                 390                 395                 400

Leu Glu Pro Arg Pro Ser Gly Pro Glu Ala Val Ala Glu Ser Lys Leu
                405                 410                 415

Lys Leu Pro Thr Leu Lys Met Pro Ser Phe Gly Ile Gly Val Ala Gly
            420                 425                 430

Pro Glu Val Lys Ala Pro Thr Gly Pro Glu Val Lys Leu Pro Lys Val
        435                 440                 445
```

```
Pro Glu Val Lys Leu Pro Lys Val Pro Glu Ala Ala Ile Pro Asp Val
    450                 455                 460

Gln Leu Pro Glu Val Gln Leu Pro Lys Met Ser Asp Met Lys Leu Pro
465                 470                 475                 480

Lys Ile Pro Glu Met Val Val Pro Asp Val Arg Leu Pro Glu Val Gln
                485                 490                 495

Leu Pro Lys Val Pro Glu Met Lys Val Pro Glu Met Lys Leu Pro Lys
            500                 505                 510

Trp Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Val Gln Leu
        515                 520                 525

Pro Lys Val Pro Glu Met Lys Leu Pro Lys Val Pro Glu Met Ala Val
    530                 535                 540

Pro Asp Val His Leu Pro Asp Val Gln Leu Pro Lys Val Pro Glu Met
545                 550                 555                 560

Lys Leu Pro Glu Met Lys Leu Pro Lys Val Pro Glu Met Ala Val Pro
                565                 570                 575

Asp Val Arg Leu Pro Glu Val Gln Leu Pro Lys Val Ser Glu Val Lys
            580                 585                 590

Leu Pro Lys Met Pro Glu Met Ala Val Pro Asp Val His Leu Pro Glu
        595                 600                 605

Leu Gln Leu Pro Lys Met Ser Glu Val Lys Leu Pro Lys Met Pro Glu
    610                 615                 620

Met Ala Val Pro Asp Val Arg Leu Pro Glu Val Gln Leu Pro Lys Val
625                 630                 635                 640

Ser Glu Met Lys Leu Pro Lys Met Pro Glu Met Thr Met Pro Asp Ile
                645                 650                 655

Arg Leu Pro Glu Val Gln Leu Pro Lys Val Pro Asp Ile Lys Leu Pro
            660                 665                 670

Glu Met Lys Leu Pro Glu Ile Lys Leu Pro Lys Val Pro Asp Met Ala
        675                 680                 685
```

```
Val Pro Asp Val Pro Leu Pro Glu Leu Gln Leu Pro Lys Val Ser Asp
    690                 695                 700

Ile Arg Leu Pro Glu Met Gln Val Ser Gln Val Pro Glu Val Gln Leu
705                 710                 715                 720

Pro Lys Met Pro Glu Met Lys Leu Ser Lys Val Pro Glu Val Gln Arg
                725                 730                 735

Lys Ser Ala Gly Ala Glu Gln Ala Lys Gly Thr Glu Phe Ser Phe Lys
            740                 745                 750

Leu Pro Lys Met Thr Met Pro Lys Leu Gly Lys Val Gly Lys Pro Gly
        755                 760                 765

Glu Ala Ser Ile Glu Val Pro Asp Lys Leu Met Thr Leu Pro Cys Leu
    770                 775                 780

Gln Pro Glu Val Gly Thr Glu Ala Ser His Val Gly Val Pro Ser Leu
785                 790                 795                 800

Ser Leu Pro Ser Val Glu Leu Asp Leu Pro Gly Ala Leu Gly Leu Glu
                805                 810                 815

Gly Gln Val Gln Glu Ala Val Pro Gly Lys Val Glu Lys Pro Glu Gly
            820                 825                 830

Pro Arg Val Ala Val Gly Val Gly Glu Val Gly Phe Arg Val Pro Ser
        835                 840                 845

Val Glu Ile Val Thr Pro Gln Leu Pro Thr Val Glu Val Glu Lys Glu
    850                 855                 860

Gln Leu Glu Met Val Glu Met Lys Val Lys Pro Ser Ser Lys Phe Ser
865                 870                 875                 880

Leu Pro Lys Phe Gly Leu Ser Gly Pro Lys Ala Val Lys Gly Glu Val
                885                 890                 895

Glu Gly Pro Gly Arg Ala Thr Lys Leu Lys Val Ser Lys Phe Thr Ile
            900                 905                 910

Ser Leu Pro Lys Ala Arg Ala Gly Thr Glu Ala Glu Ala Lys Gly Ala
        915                 920                 925
```

```
Gly Glu Ala Gly Leu Leu Pro Ala Leu Asp Leu Ser Ile Pro Gln Leu
    930                 935                 940

Ser Leu Asp Ala Gln Leu Pro Ser Gly Lys Val Glu Val Ala Asp Ser
945                 950                 955                 960

Lys Pro Lys Ser Ser Arg Phe Ala Leu Pro Lys Phe Gly Val Lys Gly
                965                 970                 975

Arg Asp Ser Glu Ala Asp Val Leu Val Ala Gly Glu Ala Glu Leu Glu
            980                 985                 990

Gly Lys Gly Trp Gly Trp Asp Gly  Lys Val Lys Met Pro  Lys Leu Lys
        995                 1000                1005

Met Pro  Ser Phe Gly Leu Ser  Arg Gly Lys Glu Ala  Glu Thr Gln
    1010                1015                1020

Asp Gly  Arg Val Ser Pro Gly  Glu Lys Leu Glu Ala  Ile Ala Gly
    1025                1030                1035

Gln Leu  Lys Ile Pro Ala Val  Glu Leu Val Thr Pro  Gly Ala Gln
    1040                1045                1050

Glu Thr  Glu Lys Val Thr Ser  Gly Val Lys Pro Ser  Gly Leu Gln
    1055                1060                1065

Val Ser  Thr Thr Gly Gln Val  Val Ala Glu Gly Gln  Glu Ser Val
    1070                1075                1080

Gln Arg  Val Ser Thr Leu Gly  Ile Ser Leu Pro Gln  Val Glu Leu
    1085                1090                1095

Ala Ser  Phe Gly Glu Ala Gly  Pro Glu Ile Val Ala  Pro Ser Ala
    1100                1105                1110

Glu Gly  Thr Ala Gly Ser Arg  Val Gln Val Pro Gln  Val Met Leu
    1115                1120                1125

Glu Leu  Pro Gly Thr Gln Val  Ala Gly Gly Asp Leu  Leu Val Gly
    1130                1135                1140

Glu Gly  Ile Phe Lys Met Pro  Thr Val Thr Val Pro  Gln Leu Glu
    1145                1150                1155

Leu Asp  Val Gly Leu Gly His  Glu Ala Gln Ala Gly  Glu Ala Ala
```

1160 1165 1170

Lys Ser Glu Gly Gly Ile Lys Leu Lys Leu Pro Thr Leu Gly Thr
1175 1180 1185

Gly Ser Arg Gly Glu Gly Val Glu Pro Gln Gly Pro Glu Ala Gln
1190 1195 1200

Arg Thr Phe His Leu Ser Leu Pro Asp Val Glu Leu Thr Ser Pro
1205 1210 1215

Val Ser Ser His Ala Glu Tyr Gln Val Val Glu Gly Asp Gly Asp
1220 1225 1230

Gly Gly His Lys Leu Lys Val Arg Leu Pro Leu Phe Gly Leu Ala
1235 1240 1245

Lys Ala Lys Glu Gly Ile Glu Val Gly Glu Lys Val Lys Ser Pro
1250 1255 1260

Lys Leu Arg Leu Pro Arg Val Gly Phe Ser Gln Ser Glu Ser Val
1265 1270 1275

Ser Gly Glu Gly Ser Pro Ser Pro Glu Glu Glu Glu Glu Gly Ser
1280 1285 1290

Gly Glu Gly Ala Ser Ser Arg Arg Gly Arg Val Arg Val Arg Leu
1295 1300 1305

Pro Arg Val Gly Leu Ala Ser Pro Ser Lys Val Ser Lys Gly Gln
1310 1315 1320

Glu Gly Asp Ala Thr Ser Lys Ser Pro Val Gly Glu Lys Ser Pro
1325 1330 1335

Lys Phe Arg Phe Pro Arg Val Ser Leu Ser Pro Lys Ala Arg Ser
1340 1345 1350

Gly Ser Arg Asp Arg Glu Glu Gly Gly Phe Arg Val Arg Leu Pro
1355 1360 1365

Ser Val Gly Phe Ser Glu Thr Ala Val Pro Gly Ser Thr Arg Ile
1370 1375 1380

Glu Gly Thr Gln Ala Ala Ala Ile
1385 1390

<210> 86
<211> 1383
<212> PRT
<213> Rat

<400> 86

```
Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1               5                  10                  15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Phe
            20                  25                  30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
        35                  40                  45

Glu Asp Ser Pro Ala Ala Lys Ser Leu Ser Leu Gln Glu Gly Asp Gln
    50                  55                  60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65                  70                  75                  80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
                85                  90                  95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
            100                 105                 110

Ser Gly Tyr Glu Met Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Asn
        115                 120                 125

Ile Gln Ser Leu Ser Pro Val Lys Lys Lys Lys Met Val Ile Gly Thr
    130                 135                 140

Leu Gly Thr Pro Ala Asp Leu Ala Pro Val Asp Val Glu Phe Ser Phe
145                 150                 155                 160

Pro Lys Phe Ser Arg Leu Arg Arg Gly Leu Lys Ala Asp Ala Val Lys
                165                 170                 175

Gly Pro Val Pro Ala Ala Pro Ala Arg Arg Arg Leu Gln Leu Pro Arg
            180                 185                 190

Leu Arg Val Arg Glu Val Ala Glu Glu Ala Gln Val Ala Arg Met Ala
        195                 200                 205
```

```
Ala Ala Ala Pro Pro Ser Arg Lys Ala Lys Ser Glu Ala Glu Val Ala
    210                 215                 220

Thr Gly Ala Gly Phe Thr Ala Pro Gln Ile Glu Leu Val Gly Pro Arg
225                 230                 235                 240

Leu Pro Ser Ala Glu Val Gly Val Pro Lys Val Ser Val Pro Lys Gly
                245                 250                 255

Thr Pro Ser Thr Glu Ala Ala Ser Gly Phe Ala Leu His Leu Pro Thr
            260                 265                 270

Leu Gly Leu Gly Ala Pro Ala Ala Pro Ala Val Glu Pro Pro Thr Thr
        275                 280                 285

Gly Ile Gln Val Pro Gln Val Glu Leu Pro Thr Leu Pro Ser Leu Pro
    290                 295                 300

Thr Leu Pro Thr Leu Pro Cys Leu Asp Thr Gln Glu Gly Ala Ala Val
305                 310                 315                 320

Val Lys Val Pro Thr Leu Asp Val Ala Ala Pro Ser Val Glu Val Asp
                325                 330                 335

Leu Ala Leu Pro Gly Ala Glu Val Glu Ala Gln Gly Glu Val Pro Glu
            340                 345                 350

Val Ala Leu Lys Met Pro Arg Leu Ser Phe Pro Arg Phe Gly Val Arg
        355                 360                 365

Gly Lys Glu Ala Thr Glu Ala Lys Val Val Lys Gly Ser Pro Glu Ala
    370                 375                 380

Lys Ala Lys Gly Pro Arg Leu Arg Met Pro Thr Phe Gly Leu Ser Leu
385                 390                 395                 400

Leu Glu Ser Arg Pro Ser Gly Pro Glu Val Ala Ala Glu Ser Lys Leu
                405                 410                 415

Lys Leu Pro Thr Leu Lys Met Pro Ser Phe Gly Ile Ser Val Ala Gly
            420                 425                 430

Pro Glu Val Lys Ala Pro Lys Gly Pro Glu Val Lys Leu Pro Lys Val
        435                 440                 445

Pro Glu Ile Lys Leu Pro Lys Ala Pro Glu Ala Ala Ile Pro Asp Val
```

```
    450                 455                 460

Gln Leu Pro Glu Val Gln Leu Pro Lys Met Ser Asp Met Lys Leu Pro
465                 470                 475                 480

Lys Ile Pro Glu Met Ala Val Pro Asp Val His Leu Pro Glu Val Lys
                485                 490                 495

Leu Pro Lys Val Pro Glu Met Lys Val Pro Glu Met Lys Leu Pro Lys
            500                 505                 510

Ile Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Ile Gln Leu
        515                 520                 525

Pro Lys Val Pro Glu Met Lys Leu Pro Asp Met Lys Leu Pro Lys Val
    530                 535                 540

Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Ile Gln Leu Pro
545                 550                 555                 560

Lys Val Pro Glu Met Lys Leu Pro Asp Met Lys Leu Pro Lys Val Pro
                565                 570                 575

Glu Met Ala Val Pro Asp Val Arg Ile Pro Glu Val Gln Leu Pro Lys
            580                 585                 590

Val Ser Glu Val Lys Leu Pro Lys Ile Pro Asp Met Ala Val Pro Asp
        595                 600                 605

Val Arg Leu Pro Glu Leu Gln Leu Pro Lys Met Ser Glu Val Lys Leu
    610                 615                 620

Pro Lys Ile Pro Asp Met Ala Val Pro Asp Val Arg Leu Pro Glu Val
625                 630                 635                 640

Gln Leu Pro Lys Val Ser Glu Leu Lys Leu Pro Lys Val Pro Glu Met
                645                 650                 655

Thr Met Pro Asp Ile Arg Leu Pro Glu Val Gln Leu Pro Lys Val Pro
            660                 665                 670

Asp Ile Lys Leu Pro Glu Ile Lys Leu Pro Lys Val Pro Glu Met Ala
        675                 680                 685

Val Pro Asp Val Pro Leu Pro Glu Leu Gln Leu Pro Lys Val Pro Gln
    690                 695                 700
```

```
Val Pro Asp Val His Leu Pro Lys Val Pro Glu Met Lys Leu Pro Lys
705                 710                 715                 720

Val Pro Glu Ala Gln Arg Lys Ser Ala Gly Ala Glu Gln Ala Glu Lys
                725                 730                 735

Thr Glu Phe Ser Phe Lys Leu Pro Lys Met Thr Val Pro Lys Leu Gly
            740                 745                 750

Lys Val Thr Lys Pro Gly Glu Ala Gly Ile Glu Val Pro Asp Lys Leu
        755                 760                 765

Leu Ile Leu Pro Cys Leu Gln Pro Glu Val Gly Thr Glu Val Ala Arg
    770                 775                 780

Val Gly Val Pro Ser Leu Ser Leu Pro Ser Val Glu Leu Asp Leu Pro
785                 790                 795                 800

Gly Ala Leu Gly Leu Glu Gly Gln Val Gln Glu Ala Val Ser Gly Lys
                805                 810                 815

Val Glu Lys Pro Glu Gly Pro Arg Val Ala Val Gly Thr Gly Glu Ala
            820                 825                 830

Gly Phe Arg Val Pro Ser Val Glu Ile Val Asn Pro Gln Leu Pro Thr
        835                 840                 845

Val Glu Val Lys Lys Glu Gln Leu Glu Met Val Glu Met Lys Val Lys
    850                 855                 860

Pro Thr Ser Lys Phe Ser Leu Pro Lys Phe Gly Leu Ser Gly Pro Lys
865                 870                 875                 880

Ala Val Lys Ala Glu Val Glu Gly Pro Gly Arg Ala Thr Lys Leu Lys
                885                 890                 895

Val Ser Lys Phe Ala Ile Ser Leu Pro Arg Ala Arg Ala Gly Thr Asp
            900                 905                 910

Ala Asp Ala Lys Gly Ala Gly Glu Ala Gly Leu Leu Pro Ala Leu Asp
        915                 920                 925

Leu Ser Ile Pro Gln Leu Ser Leu Asp Ala Gln Leu Pro Ser Gly Lys
    930                 935                 940
```

```
Val Glu Val Ala Gly Ala Glu Ser Lys Pro Lys Gly Ser Arg Phe Ala
945                 950                 955                 960

Leu Pro Lys Phe Gly Ala Lys Gly Arg Asp Ser Glu Ala Asp Val Leu
                965                 970                 975

Val Ala Gly Glu Ala Glu Leu Glu Gly Lys Gly Trp Gly Trp Asp Gly
            980                 985                 990

Lys Val Lys Met Pro Lys Leu Lys  Met Pro Ser Phe Gly  Leu Ser Arg
        995                 1000                1005

Gly Lys  Glu Ala Glu Ile Gln  Asp Gly Arg Val Ser  Pro Gly Glu
    1010                1015                1020

Lys Leu  Glu Ala Ile Ala Gly  Gln Leu Lys Ile Pro  Glu Val Glu
    1025                1030                1035

Leu Val  Thr Pro Gly Ala Gln  Glu Thr Glu Lys Val  Thr Ser Gly
    1040                1045                1050

Val Lys  Pro Ser Gly Leu Gln  Val Ser Thr Thr Arg  Gln Val Val
    1055                1060                1065

Ala Glu  Gly Gln Glu Gly Ala  Gln Arg Val Ser Ser  Leu Gly Ile
    1070                1075                1080

Ser Leu  Pro Gln Val Glu Leu  Ala Ser Phe Gly Glu  Ala Gly Pro
    1085                1090                1095

Glu Ile  Ala Ala Pro Ser Ala  Glu Gly Thr Val Gly  Ser Arg Ile
    1100                1105                1110

Gln Val  Pro Gln Val Met Leu  Glu Leu Pro Gly Thr  Gln Val Ala
    1115                1120                1125

Gly Gly  Asp Leu Leu Val Gly  Glu Gly Ile Phe Lys  Met Pro Thr
    1130                1135                1140

Val Thr  Val Pro Gln Leu Glu  Leu Asp Val Gly Leu  Gly His Glu
    1145                1150                1155

Ala Gln  Ala Gly Glu Thr Ala  Lys Ser Glu Gly Gly  Leu Lys Leu
    1160                1165                1170
```

Lys Leu Pro Thr Leu Gly Ala Gly Gly Lys Gly Glu Gly Ala Glu
1175 1180 1185

Ala Gln Ser Pro Glu Ala Gln His Thr Phe His Ile Ser Leu Pro
1190 1195 1200

Asp Val Glu Leu Thr Ser Pro Val Ser Ser His Ala Glu Tyr Gln
1205 1210 1215

Val Val Glu Gly Asp Gly Asp Gly Gly His Lys Leu Lys Val Arg
1220 1225 1230

Leu Pro Leu Phe Gly Leu Ala Arg Ala Lys Glu Gly Ile Glu Thr
1235 1240 1245

Gly Glu Lys Val Lys Ser Pro Lys Leu Arg Leu Pro Arg Val Gly
1250 1255 1260

Phe Ser Gln Ser Glu Ser Ala Ser Gly Glu Gly Ser Pro Ser Pro
1265 1270 1275

Glu Glu Glu Glu Glu Gly Ser Gly Glu Gly Ala Ser Gly Arg Arg
1280 1285 1290

Gly Arg Val Arg Val Arg Leu Pro Arg Val Gly Leu Ala Ser Pro
1295 1300 1305

Ser Lys Gly Ser Lys Gly Gln Glu Gly Asp Ala Ala Ser Lys Ser
1310 1315 1320

Pro Val Gly Glu Lys Ser Pro Lys Phe Arg Phe Pro Arg Val Ser
1325 1330 1335

Leu Ser Pro Lys Ala Arg Ser Gly Ser Lys Asp Arg Glu Glu Gly
1340 1345 1350

Gly Phe Arg Val Arg Leu Pro Ser Val Gly Phe Ser Glu Thr Ala
1355 1360 1365

Ala Pro Gly Ser Ala Arg Ile Glu Gly Thr Gln Ala Ala Ala Ile
1370 1375 1380

<210> 87
<211> 1383
<212> PRT
<213> Rat

<400> 87

```
Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1               5                  10                  15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Phe
            20                  25                  30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
        35                  40                  45

Glu Asp Ser Pro Ala Ala Lys Ser Leu Ser Leu Gln Glu Gly Asp Gln
    50                  55                  60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65                  70                  75                  80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
                85                  90                  95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
            100                 105                 110

Ser Gly Tyr Glu Met Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Asn
        115                 120                 125

Ile Gln Ser Leu Ser Pro Val Lys Lys Lys Lys Met Val Ile Gly Thr
    130                 135                 140

Leu Gly Thr Pro Ala Asp Leu Ala Pro Val Asp Val Glu Phe Ser Phe
145                 150                 155                 160

Pro Lys Phe Ser Arg Leu Arg Arg Gly Leu Lys Ala Asp Ala Val Lys
                165                 170                 175

Gly Pro Val Pro Ala Ala Pro Ala Arg Arg Arg Leu Gln Leu Pro Arg
            180                 185                 190

Leu Arg Val Arg Glu Val Ala Glu Glu Ala Gln Val Ala Arg Met Ala
        195                 200                 205

Ala Ala Ala Pro Pro Ser Arg Lys Ala Lys Ser Glu Ala Glu Val Ala
    210                 215                 220

Thr Gly Ala Gly Phe Thr Ala Pro Gln Ile Glu Leu Val Gly Pro Arg
225                 230                 235                 240
```

```
Leu Pro Ser Ala Glu Val Gly Val Pro Lys Val Ser Val Pro Lys Gly
                245                 250                 255

Thr Pro Ser Thr Glu Ala Ala Ser Gly Phe Ala Leu His Leu Pro Thr
            260                 265                 270

Leu Gly Leu Gly Ala Pro Ala Ala Pro Ala Val Glu Pro Pro Thr Thr
        275                 280                 285

Gly Ile Gln Val Pro Gln Val Glu Leu Pro Thr Leu Pro Ser Leu Pro
    290                 295                 300

Thr Leu Pro Thr Leu Pro Cys Leu Asp Thr Gln Glu Gly Ala Ala Val
305                 310                 315                 320

Val Lys Val Pro Thr Leu Asp Val Ala Ala Pro Ser Val Glu Val Asp
                325                 330                 335

Leu Ala Leu Pro Gly Ala Glu Val Glu Ala Gln Gly Glu Val Pro Glu
            340                 345                 350

Val Ala Leu Lys Met Pro Arg Leu Ser Phe Pro Arg Phe Gly Val Arg
        355                 360                 365

Gly Lys Glu Ala Thr Glu Ala Lys Val Val Lys Gly Ser Pro Glu Ala
    370                 375                 380

Lys Ala Lys Gly Pro Arg Leu Arg Met Pro Thr Phe Gly Leu Ser Leu
385                 390                 395                 400

Leu Glu Ser Arg Pro Ser Gly Pro Glu Val Ala Ala Glu Ser Lys Leu
                405                 410                 415

Lys Leu Pro Thr Leu Lys Met Pro Ser Phe Gly Ile Ser Val Ala Gly
            420                 425                 430

Pro Glu Val Lys Ala Pro Lys Gly Pro Glu Val Lys Leu Pro Lys Val
        435                 440                 445

Pro Glu Ile Lys Leu Pro Lys Ala Pro Glu Ala Ala Ile Pro Asp Val
    450                 455                 460

Gln Leu Pro Glu Val Gln Leu Pro Lys Met Ser Asp Met Lys Leu Pro
465                 470                 475                 480
```

```
Lys Ile Pro Glu Met Ala Val Pro Asp Val His Leu Pro Glu Val Lys
                485                 490                 495

Leu Pro Lys Val Pro Glu Met Lys Val Pro Glu Met Lys Leu Pro Lys
            500                 505                 510

Ile Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Ile Gln Leu
        515                 520                 525

Pro Lys Val Pro Glu Met Lys Leu Pro Asp Met Lys Leu Pro Lys Val
    530                 535                 540

Pro Glu Met Ala Val Pro Asp Val His Leu Pro Asp Ile Gln Leu Pro
545                 550                 555                 560

Lys Val Pro Glu Met Lys Leu Pro Asp Met Lys Leu Pro Lys Val Pro
                565                 570                 575

Glu Met Ala Val Pro Asp Val Arg Ile Pro Glu Val Gln Leu Pro Lys
            580                 585                 590

Val Ser Glu Val Lys Leu Pro Lys Ile Pro Asp Met Ala Val Pro Asp
        595                 600                 605

Val Arg Leu Pro Glu Leu Gln Leu Pro Lys Met Ser Glu Val Lys Leu
    610                 615                 620

Pro Lys Ile Pro Asp Met Ala Val Pro Asp Val Arg Leu Pro Glu Val
625                 630                 635                 640

Gln Leu Pro Lys Val Ser Glu Leu Lys Leu Pro Lys Val Pro Glu Met
                645                 650                 655

Thr Met Pro Asp Ile Arg Leu Pro Glu Val Gln Leu Pro Lys Val Pro
            660                 665                 670

Asp Ile Lys Leu Pro Glu Ile Lys Leu Pro Lys Val Pro Glu Met Ala
        675                 680                 685

Val Pro Asp Val Pro Leu Pro Glu Leu Gln Leu Pro Lys Val Pro Gln
    690                 695                 700

Val Pro Asp Val His Leu Pro Lys Val Pro Glu Met Lys Leu Pro Lys
705                 710                 715                 720

Val Pro Glu Ala Gln Arg Lys Ser Ala Gly Ala Glu Gln Ala Glu Lys
```

725 730 735

Thr Glu Phe Ser Phe Lys Leu Pro Lys Met Thr Val Pro Lys Leu Gly
740 745 750

Lys Val Thr Lys Pro Gly Glu Ala Gly Ile Glu Val Pro Asp Lys Leu
755 760 765

Leu Ile Leu Pro Cys Leu Gln Pro Glu Val Gly Thr Glu Val Ala Arg
770 775 780

Val Gly Val Pro Ser Leu Ser Leu Pro Ser Val Glu Leu Asp Leu Pro
785 790 795 800

Gly Ala Leu Gly Leu Glu Gly Gln Val Gln Glu Ala Val Ser Gly Lys
805 810 815

Val Glu Lys Pro Glu Gly Pro Arg Val Ala Val Gly Thr Gly Glu Ala
820 825 830

Gly Phe Arg Val Pro Ser Val Glu Ile Val Asn Pro Gln Leu Pro Thr
835 840 845

Val Glu Val Lys Lys Glu Gln Leu Glu Met Val Glu Met Lys Val Lys
850 855 860

Pro Thr Ser Lys Phe Ser Leu Pro Lys Phe Gly Leu Ser Gly Pro Lys
865 870 875 880

Ala Val Lys Ala Glu Val Glu Gly Pro Gly Arg Ala Thr Lys Leu Lys
885 890 895

Val Ser Lys Phe Ala Ile Ser Leu Pro Arg Ala Arg Ala Gly Thr Asp
900 905 910

Ala Asp Ala Lys Gly Ala Gly Glu Ala Gly Leu Leu Pro Ala Leu Asp
915 920 925

Leu Ser Ile Pro Gln Leu Ser Leu Asp Ala Gln Leu Pro Ser Gly Lys
930 935 940

Val Glu Val Ala Gly Ala Glu Ser Lys Pro Lys Gly Ser Arg Phe Ala
945 950 955 960

Leu Pro Lys Phe Gly Ala Lys Gly Arg Asp Ser Glu Ala Asp Val Leu
965 970 975

```
Val Ala Gly Glu Ala Glu Leu Glu Gly Lys Gly Trp Gly Trp Asp Gly
            980                 985                 990

Lys Val Lys Met Pro Lys Leu Lys  Met Pro Ser Phe Gly  Leu Ser Arg
        995                 1000                1005

Gly Lys  Glu Ala Glu Ile Gln  Asp Gly Arg Val Ser  Pro Gly Glu
    1010                1015                1020

Lys Leu  Glu Ala Ile Ala Gly  Gln Leu Lys Ile Pro  Glu Val Glu
    1025                1030                1035

Leu Val  Thr Pro Gly Ala Gln  Glu Thr Glu Lys Val  Thr Ser Gly
    1040                1045                1050

Val Lys  Pro Ser Gly Leu Gln  Val Ser Thr Thr Arg  Gln Val Val
    1055                1060                1065

Ala Glu  Gly Gln Glu Gly Ala  Gln Arg Val Ser Ser  Leu Gly Ile
    1070                1075                1080

Ser Leu  Pro Gln Val Glu Leu  Ala Ser Phe Gly Glu  Ala Gly Pro
    1085                1090                1095

Glu Ile  Ala Ala Pro Ser Ala  Glu Gly Thr Val Gly  Ser Arg Ile
    1100                1105                1110

Gln Val  Pro Gln Val Met Leu  Glu Leu Pro Gly Thr  Gln Val Ala
    1115                1120                1125

Gly Gly  Asp Leu Leu Val Gly  Glu Gly Ile Phe Lys  Met Pro Thr
    1130                1135                1140

Val Thr  Val Pro Gln Leu Glu  Leu Asp Val Gly Leu  Gly His Glu
    1145                1150                1155

Ala Gln  Ala Gly Glu Thr Ala  Lys Ser Glu Gly Gly  Leu Lys Leu
    1160                1165                1170

Lys Leu  Pro Thr Leu Gly Ala  Gly Gly Lys Gly Glu  Gly Ala Glu
    1175                1180                1185

Ala Gln  Ser Pro Glu Ala Gln  His Thr Phe His Ile  Ser Leu Pro
    1190                1195                1200
```

```
Asp Val  Glu Leu Thr Ser Pro  Val Ser Ser His Ala  Glu Tyr Gln
    1205                 1210                 1215

Val Val  Glu Gly Asp Gly Asp  Gly Gly His Lys Leu  Lys Val Arg
    1220                 1225                 1230

Leu Pro  Leu Phe Gly Leu Ala  Arg Ala Lys Glu Gly  Ile Glu Thr
    1235                 1240                 1245

Gly Glu  Lys Val Lys Ser Pro  Lys Leu Arg Leu Pro  Arg Val Gly
    1250                 1255                 1260

Phe Ser  Gln Ser Glu Ser Ala  Ser Gly Glu Gly Ser  Pro Ser Pro
    1265                 1270                 1275

Glu Glu  Glu Glu Glu Gly Ser  Gly Glu Gly Ala Ser  Gly Arg Arg
    1280                 1285                 1290

Gly Arg  Val Arg Val Arg Leu  Pro Arg Val Gly Leu  Ala Ser Pro
    1295                 1300                 1305

Ser Lys  Gly Ser Lys Gly Gln  Glu Gly Asp Ala Ala  Ser Lys Ser
    1310                 1315                 1320

Pro Val  Gly Glu Lys Ser Pro  Lys Phe Arg Phe Pro  Arg Val Ser
    1325                 1330                 1335

Leu Ser  Pro Lys Ala Arg Ser  Gly Ser Lys Asp Arg  Glu Glu Gly
    1340                 1345                 1350

Gly Phe  Arg Val Arg Leu Pro  Ser Val Gly Phe Ser  Glu Thr Ala
    1355                 1360                 1365

Ala Pro  Gly Ser Ala Arg Ile  Glu Gly Thr Gln Ala  Ala Ala Ile
    1370                 1375                 1380
```

<210> 88
<211> 1461
<212> PRT
<213> Human

<400> 88

```
Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1               5                  10                  15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Ile
```

```
            20                  25                  30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
        35                  40                  45

Glu Asp Ser Pro Ala Ala Arg Ser Leu Ser Leu Gln Glu Gly Asp Gln
    50                  55                  60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65                  70                  75                  80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
                85                  90                  95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
            100                 105                 110

Ser Gly Tyr Glu Ile Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Asn
        115                 120                 125

Ile Gln Ser Leu Ser Pro Val Lys Lys Lys Lys Met Val Pro Gly Ala
    130                 135                 140

Leu Gly Val Pro Ala Asp Leu Ala Pro Val Asp Val Glu Phe Ser Phe
145                 150                 155                 160

Pro Lys Phe Ser Arg Leu Arg Arg Gly Leu Lys Ala Glu Ala Val Lys
                165                 170                 175

Gly Pro Val Pro Ala Ala Pro Ala Arg Arg Arg Leu Gln Leu Pro Arg
            180                 185                 190

Leu Arg Val Arg Glu Val Ala Glu Glu Ala Gln Ala Ala Arg Leu Ala
        195                 200                 205

Ala Ala Ala Pro Pro Pro Arg Lys Ala Lys Val Glu Ala Glu Val Ala
    210                 215                 220

Ala Gly Ala Arg Phe Thr Ala Pro Gln Val Glu Leu Val Gly Pro Arg
225                 230                 235                 240

Leu Pro Gly Ala Glu Val Gly Val Pro Gln Val Ser Ala Pro Lys Ala
                245                 250                 255

Ala Pro Ser Ala Glu Ala Ala Gly Gly Phe Ala Leu His Leu Pro Thr
            260                 265                 270
```

```
Leu Gly Leu Gly Ala Pro Ala Pro Pro Ala Val Glu Ala Pro Ala Val
        275                 280                 285

Gly Ile Gln Val Pro Gln Val Glu Leu Pro Ala Leu Pro Ser Leu Pro
    290                 295                 300

Thr Leu Pro Thr Leu Pro Cys Leu Glu Thr Arg Glu Gly Ala Val Ser
305                 310                 315                 320

Val Val Val Pro Thr Leu Asp Val Ala Ala Pro Thr Val Gly Val Asp
                325                 330                 335

Leu Ala Leu Pro Gly Ala Glu Val Glu Ala Arg Gly Glu Ala Pro Glu
            340                 345                 350

Val Ala Leu Lys Met Pro Arg Leu Ser Phe Pro Arg Phe Gly Ala Arg
        355                 360                 365

Ala Lys Glu Val Ala Glu Ala Lys Val Ala Lys Val Ser Pro Glu Ala
    370                 375                 380

Arg Val Lys Gly Pro Arg Leu Arg Met Pro Thr Phe Gly Leu Ser Leu
385                 390                 395                 400

Leu Glu Pro Arg Pro Ala Ala Pro Glu Val Val Glu Ser Lys Leu Lys
                405                 410                 415

Leu Pro Thr Ile Lys Met Pro Ser Leu Gly Ile Gly Val Ser Gly Pro
            420                 425                 430

Glu Val Lys Val Pro Lys Gly Pro Glu Val Lys Leu Pro Lys Ala Pro
        435                 440                 445

Glu Val Lys Leu Pro Lys Val Pro Glu Ala Ala Leu Pro Glu Val Arg
    450                 455                 460

Leu Pro Glu Val Glu Leu Pro Lys Val Ser Glu Met Lys Leu Pro Lys
465                 470                 475                 480

Val Pro Glu Met Ala Val Pro Glu Val Arg Leu Pro Glu Val Glu Leu
                485                 490                 495

Pro Lys Val Ser Glu Met Lys Leu Pro Lys Val Pro Glu Met Ala Val
            500                 505                 510
```

```
Pro Glu Val Arg Leu Pro Glu Val Gln Leu Leu Lys Val Ser Glu Met
        515                 520                 525

Lys Leu Pro Lys Val Pro Glu Met Ala Val Pro Glu Val Arg Leu Pro
    530                 535                 540

Glu Val Gln Leu Pro Lys Val Ser Glu Met Lys Leu Pro Glu Val Ser
545                 550                 555                 560

Glu Val Ala Val Pro Glu Val Arg Leu Pro Glu Val Gln Leu Pro Lys
                565                 570                 575

Val Pro Glu Met Lys Val Pro Glu Met Lys Leu Pro Lys Val Pro Glu
            580                 585                 590

Met Lys Leu Pro Glu Met Lys Leu Pro Glu Val Gln Leu Pro Lys Val
        595                 600                 605

Pro Glu Met Ala Val Pro Asp Val His Leu Pro Glu Val Gln Leu Pro
    610                 615                 620

Lys Val Pro Glu Met Lys Leu Pro Glu Met Lys Leu Pro Glu Val Lys
625                 630                 635                 640

Leu Pro Lys Val Pro Glu Met Ala Val Pro Asp Val His Leu Pro Glu
                645                 650                 655

Val Gln Leu Pro Lys Val Pro Glu Met Lys Leu Pro Lys Met Pro Glu
            660                 665                 670

Met Ala Val Pro Glu Val Arg Leu Pro Glu Val Gln Leu Pro Lys Val
        675                 680                 685

Ser Glu Met Lys Leu Pro Lys Val Pro Glu Met Ala Val Pro Asp Val
    690                 695                 700

His Leu Pro Glu Val Gln Leu Pro Lys Val Cys Glu Met Lys Val Pro
705                 710                 715                 720

Asp Met Lys Leu Pro Glu Ile Lys Leu Pro Lys Val Pro Glu Met Ala
                725                 730                 735

Val Pro Asp Val His Leu Pro Glu Val Gln Leu Pro Lys Val Ser Glu
            740                 745                 750
```

```
Ile Arg Leu Pro Glu Met Gln Val Pro Lys Val Pro Asp Val His Leu
        755                 760                 765

Pro Lys Ala Pro Glu Val Lys Leu Pro Arg Ala Pro Glu Val Gln Leu
    770                 775                 780

Lys Ala Thr Lys Ala Glu Gln Ala Glu Gly Met Glu Phe Gly Phe Lys
785                 790                 795                 800

Met Pro Lys Met Thr Met Pro Lys Leu Gly Arg Ala Glu Ser Pro Ser
                805                 810                 815

Arg Gly Lys Pro Gly Glu Ala Gly Ala Glu Val Ser Gly Lys Leu Val
            820                 825                 830

Thr Leu Pro Cys Leu Gln Pro Glu Val Asp Gly Glu Ala His Val Gly
        835                 840                 845

Val Pro Ser Leu Thr Leu Pro Ser Val Glu Leu Asp Leu Pro Gly Ala
    850                 855                 860

Leu Gly Leu Gln Gly Gln Val Pro Ala Ala Lys Met Gly Lys Gly Glu
865                 870                 875                 880

Arg Val Glu Gly Pro Glu Val Ala Ala Gly Val Arg Glu Val Gly Phe
                885                 890                 895

Arg Val Pro Ser Val Glu Ile Val Thr Pro Gln Leu Pro Ala Val Glu
            900                 905                 910

Ile Glu Glu Gly Arg Leu Glu Met Ile Glu Thr Lys Val Lys Pro Ser
        915                 920                 925

Ser Lys Phe Ser Leu Pro Lys Phe Gly Leu Ser Gly Pro Lys Val Ala
    930                 935                 940

Lys Ala Glu Ala Glu Gly Ala Gly Arg Ala Thr Lys Leu Lys Val Ser
945                 950                 955                 960

Lys Phe Ala Ile Ser Leu Pro Lys Ala Arg Val Gly Ala Glu Ala Glu
                965                 970                 975

Ala Lys Gly Ala Gly Glu Ala Gly Leu Leu Pro Ala Leu Asp Leu Ser
            980                 985                 990

Ile Pro Gln Leu Ser Leu Asp Ala His Leu Pro Ser Gly Lys Val Glu
```

995 1000 1005

Val Ala Gly Ala Asp Leu Lys Phe Lys Gly Pro Arg Phe Ala Leu
1010 1015 1020

Pro Lys Phe Gly Val Arg Gly Arg Asp Thr Glu Ala Ala Glu Leu
1025 1030 1035

Val Pro Gly Val Ala Glu Leu Glu Gly Lys Gly Trp Gly Trp Asp
1040 1045 1050

Gly Arg Val Lys Met Pro Lys Leu Lys Met Pro Ser Phe Gly Leu
1055 1060 1065

Ala Arg Gly Lys Glu Ala Glu Val Gln Gly Asp Arg Ala Ser Pro
1070 1075 1080

Gly Glu Lys Ala Glu Ser Thr Ala Val Gln Leu Lys Ile Pro Glu
1085 1090 1095

Val Glu Leu Val Thr Leu Gly Ala Gln Glu Glu Gly Arg Ala Glu
1100 1105 1110

Gly Ala Val Ala Val Ser Gly Met Gln Leu Ser Gly Leu Lys Val
1115 1120 1125

Ser Thr Ala Arg Gln Val Val Thr Glu Gly His Asp Ala Gly Leu
1130 1135 1140

Arg Met Pro Pro Leu Gly Ile Ser Leu Pro Gln Val Glu Leu Thr
1145 1150 1155

Gly Phe Gly Glu Ala Gly Thr Pro Gly Gln Gln Ala Gln Ser Thr
1160 1165 1170

Val Pro Ser Ala Glu Gly Thr Ala Gly Tyr Arg Val Gln Val Pro
1175 1180 1185

Gln Val Thr Leu Ser Leu Pro Gly Ala Gln Val Ala Gly Gly Glu
1190 1195 1200

Leu Leu Val Gly Glu Gly Val Phe Lys Met Pro Thr Val Thr Val
1205 1210 1215

Pro Gln Leu Glu Leu Asp Val Gly Leu Ser Arg Glu Ala Gln Ala
1220 1225 1230

```
Gly Glu  Ala Ala Thr Gly Glu  Gly Gly Leu Arg Leu  Lys Leu Pro
    1235                 1240                 1245

Thr Leu  Gly Ala Arg Ala Arg  Val Gly Gly Glu Gly  Ala Glu Glu
    1250                 1255                 1260

Gln Pro  Pro Gly Ala Glu Arg  Thr Phe Cys Leu Ser  Leu Pro Asp
    1265                 1270                 1275

Val Glu  Leu Ser Pro Ser Gly  Gly Asn His Ala Glu  Tyr Gln Val
    1280                 1285                 1290

Ala Glu  Gly Glu Gly Glu Ala  Gly His Lys Leu Lys  Val Arg Leu
    1295                 1300                 1305

Pro Arg  Phe Gly Leu Val Arg  Ala Lys Glu Gly Ala  Glu Glu Gly
    1310                 1315                 1320

Glu Lys  Ala Lys Ser Pro Lys  Leu Arg Leu Pro Arg  Val Gly Phe
    1325                 1330                 1335

Ser Gln  Ser Glu Met Val Thr  Gly Glu Gly Ser Pro  Ser Pro Glu
    1340                 1345                 1350

Glu Glu  Glu Glu Glu Glu Glu  Glu Gly Ser Gly Glu  Gly Ala Ser
    1355                 1360                 1365

Gly Arg  Arg Gly Arg Val Arg  Val Arg Leu Pro Arg  Val Gly Leu
    1370                 1375                 1380

Ala Ala  Pro Ser Lys Ala Ser  Arg Gly Gln Glu Gly  Asp Ala Ala
    1385                 1390                 1395

Pro Lys  Ser Pro Val Arg Glu  Lys Ser Pro Lys Phe  Arg Phe Pro
    1400                 1405                 1410

Arg Val  Ser Leu Ser Pro Lys  Ala Arg Ser Gly Ser  Gly Asp Gln
    1415                 1420                 1425

Glu Glu  Gly Gly Leu Arg Val  Arg Leu Pro Ser Val  Gly Phe Ser
    1430                 1435                 1440

Glu Thr  Gly Ala Pro Gly Pro  Ala Arg Met Glu Gly  Ala Gln Ala
    1445                 1450                 1455
```

Ala Ala Val
1460

<210> 89
<211> 147
<212> PRT
<213> Human

<400> 89

Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1 5 10 15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Ile
20 25 30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
35 40 45

Glu Asp Ser Pro Ala Ala Arg Ser Leu Ser Leu Gln Glu Gly Asp Gln
50 55 60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65 70 75 80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
85 90 95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
100 105 110

Ser Gly Tyr Glu Ile Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Val
115 120 125

Arg Val Leu Ser Pro Ala Pro Ala Leu Asp Cys Pro Ser Asp Pro Val
130 135 140

Ser Ala Pro
145

<210> 90
<211> 370
<212> PRT
<213> Arabidopsisthaliana

<400> 90

Met Ala Leu Met Lys Lys Ser Leu Ser Ala Ala Leu Leu Ser Ser Pro
1 5 10 15

```
Leu Leu Ile Ile Cys Leu Ile Ala Leu Leu Ala Asp Pro Phe Ser Val
            20                  25                  30

Gly Ala Arg Arg Leu Leu Glu Asp Pro Lys Pro Glu Ile Pro Lys Leu
        35                  40                  45

Pro Glu Leu Pro Lys Phe Glu Val Pro Lys Leu Pro Glu Phe Pro Lys
    50                  55                  60

Pro Glu Leu Pro Lys Leu Pro Glu Phe Pro Lys Pro Glu Leu Pro Lys
65                  70                  75                  80

Ile Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Val Pro Glu Ile Pro
                85                  90                  95

Lys Pro Glu Glu Thr Lys Leu Pro Asp Ile Pro Lys Leu Glu Leu Pro
            100                 105                 110

Lys Phe Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Met Pro Glu Ile
        115                 120                 125

Pro Lys Pro Glu Leu Pro Lys Val Pro Glu Ile Gln Lys Pro Glu Leu
    130                 135                 140

Pro Lys Met Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Phe Pro Glu
145                 150                 155                 160

Ile Pro Lys Pro Asp Leu Pro Lys Phe Pro Glu Asn Ser Lys Pro Glu
                165                 170                 175

Val Pro Lys Leu Met Glu Thr Glu Lys Pro Glu Ala Pro Lys Val Pro
            180                 185                 190

Glu Ile Pro Lys Pro Glu Leu Pro Lys Leu Pro Glu Val Pro Lys Leu
        195                 200                 205

Glu Ala Pro Lys Val Pro Glu Ile Gln Lys Pro Glu Leu Pro Lys Met
    210                 215                 220

Pro Glu Leu Pro Lys Met Pro Glu Ile Gln Lys Pro Glu Leu Pro Lys
225                 230                 235                 240

Leu Pro Glu Val Pro Lys Leu Glu Ala Pro Lys Val Pro Glu Ile Gln
                245                 250                 255
```

```
Lys Pro Glu Leu Pro Lys Met Pro Glu Leu Pro Lys Met Pro Glu Ile
            260                 265                 270

Gln Lys Pro Glu Leu Pro Lys Met Pro Glu Ile Gln Lys Pro Glu Leu
        275                 280                 285

Pro Lys Val Pro Glu Val Pro Lys Pro Glu Leu Pro Thr Val Pro Glu
    290                 295                 300

Val Pro Lys Ser Glu Ala Pro Lys Phe Pro Glu Ile Pro Lys Pro Glu
305                 310                 315                 320

Leu Pro Lys Ile Pro Glu Val Pro Lys Pro Glu Leu Pro Lys Val Pro
                325                 330                 335

Glu Ile Thr Lys Pro Ala Val Pro Glu Ile Pro Lys Pro Glu Leu Pro
            340                 345                 350

Thr Met Pro Gln Leu Pro Lys Leu Pro Glu Phe Pro Lys Val Pro Gly
        355                 360                 365

Thr Pro
    370
```

<210> 91
<211> 370
<212> PRT
<213> Arabidopsisthaliana

<400> 91

```
Met Ala Leu Met Lys Lys Ser Leu Ser Ala Ala Leu Leu Ser Ser Pro
1               5                   10                  15

Leu Leu Ile Ile Cys Leu Ile Ala Leu Leu Ala Asp Pro Phe Ser Val
            20                  25                  30

Gly Ala Arg Arg Leu Leu Glu Asp Pro Lys Pro Glu Ile Pro Lys Leu
        35                  40                  45

Pro Glu Leu Pro Lys Phe Glu Val Pro Lys Leu Pro Glu Phe Pro Lys
    50                  55                  60

Pro Glu Leu Pro Lys Leu Pro Glu Phe Pro Lys Pro Glu Leu Pro Lys
65                  70                  75                  80

Ile Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Val Pro Glu Ile Pro
```

```
                85                  90                  95

Lys Pro Glu Glu Thr Lys Leu Pro Asp Ile Pro Lys Leu Glu Leu Pro
            100                 105                 110

Lys Phe Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Met Pro Glu Ile
        115                 120                 125

Pro Lys Pro Glu Leu Pro Lys Val Pro Glu Ile Gln Lys Pro Glu Leu
    130                 135                 140

Pro Lys Met Pro Glu Ile Pro Lys Pro Glu Leu Pro Lys Phe Pro Glu
145                 150                 155                 160

Ile Pro Lys Pro Asp Leu Pro Lys Phe Pro Glu Asn Ser Lys Ser Glu
                165                 170                 175

Val Pro Lys Leu Met Glu Thr Glu Lys Pro Glu Ala Pro Lys Val Pro
            180                 185                 190

Glu Ile Pro Lys Pro Glu Leu Pro Lys Leu Pro Glu Val Pro Lys Leu
        195                 200                 205

Glu Ala Pro Lys Val Pro Glu Ile Gln Lys Pro Glu Leu Pro Lys Met
    210                 215                 220

Pro Glu Leu Pro Lys Met Pro Glu Ile Gln Lys Pro Glu Leu Pro Lys
225                 230                 235                 240

Leu Pro Glu Val Pro Lys Leu Glu Ala Pro Lys Val Pro Glu Ile Gln
                245                 250                 255

Lys Pro Glu Leu Pro Lys Met Pro Glu Leu Pro Lys Met Pro Glu Ile
            260                 265                 270

Gln Lys Pro Glu Leu Pro Lys Met Pro Glu Ile Gln Lys Pro Glu Leu
        275                 280                 285

Pro Lys Val Pro Glu Val Pro Lys Pro Glu Leu Pro Thr Val Pro Glu
    290                 295                 300

Val Pro Lys Ser Glu Ala Pro Lys Phe Pro Glu Ile Pro Lys Pro Glu
305                 310                 315                 320

Leu Pro Lys Ile Pro Glu Val Pro Lys Pro Glu Leu Pro Lys Val Pro
                325                 330                 335
```

```
Glu Ile Thr Lys Pro Ala Val Pro Glu Ile Pro Lys Pro Glu Leu Pro
            340                 345                 350

Thr Met Pro Gln Leu Pro Lys Leu Pro Glu Phe Pro Lys Val Pro Gly
        355                 360                 365

Thr Pro
    370
```

<210> 92
<211> 147
<212> PRT
<213> Human

<400> 92

```
Met Glu Ala Arg Ser Arg Ser Ala Glu Glu Leu Arg Arg Ala Glu Leu
1               5                   10                  15

Val Glu Ile Ile Val Glu Thr Glu Ala Gln Thr Gly Val Ser Gly Ile
            20                  25                  30

Asn Val Ala Gly Gly Gly Lys Glu Gly Ile Phe Val Arg Glu Leu Arg
        35                  40                  45

Glu Asp Ser Pro Ala Ala Arg Ser Leu Ser Leu Gln Glu Gly Asp Gln
    50                  55                  60

Leu Leu Ser Ala Arg Val Phe Phe Glu Asn Phe Lys Tyr Glu Asp Ala
65                  70                  75                  80

Leu Arg Leu Leu Gln Cys Ala Glu Pro Tyr Lys Val Ser Phe Cys Leu
                85                  90                  95

Lys Arg Thr Val Pro Thr Gly Asp Leu Ala Leu Arg Pro Gly Thr Val
            100                 105                 110

Ser Gly Tyr Glu Ile Lys Gly Pro Arg Ala Lys Val Ala Lys Leu Val
        115                 120                 125

Arg Val Leu Ser Pro Ala Pro Ala Leu Asp Cys Pro Ser Asp Pro Val
    130                 135                 140

Ser Ala Pro
145
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Met Glu Leu Leu Gly Glu Gly Ala Ile Leu Gln Gly Arg Arg Glu Ser
1               5                  10                  15

Gln Met Glu Ala Ala Pro Gly Ile Gln Thr Cys Gly His Ser Ala Glu
            20                  25                  30

Leu Pro Ser Gln Gly Met Gly Arg Thr Arg Ala Glu Arg Ala Thr Ser
        35                  40                  45

Pro Val Arg Pro Ser Ile Thr Trp Lys Ile Gly Ser Pro Lys Val Asp
    50                  55                  60

Gly Arg His Thr Pro Met Pro Phe Pro Ser Val Ser Thr Gly Glu Gly
65                  70                  75                  80

Lys Ser Thr Leu Trp Ile Leu Tyr Leu His Cys Phe Gly Ser Arg Lys
                85                  90                  95

Ser Pro Asp Phe Ser Thr Pro Pro Arg Glu Pro Lys Ser Gln Gly Met
            100                 105                 110

Leu Lys Glu Gln Ala Arg Lys Met Arg Gly Gln Arg Gly Gly Arg Glu
        115                 120                 125

Gly Ala Lys Gly Thr Leu Lys Thr Gln Arg Pro Pro Ser Lys Asp Gln
    130                 135                 140

Ala Pro Leu Ala His Gly Pro Arg Glu Lys Gln Val Pro Ala Asp Glu
145                 150                 155                 160

Ser Phe Leu Gln Lys Pro Arg Leu Pro Asp Leu Val Lys Gln Gln Pro
                165                 170                 175

Asn Arg Ser Leu Ser Thr Asn Val Arg Gly Ala Glu Pro Ser Pro Ser
            180                 185                 190

Leu Ala Thr Glu Leu Val Leu Lys Lys Leu Val Pro Ala Ser Thr Cys
        195                 200                 205

Gln Glu Leu Pro Lys Thr
    210
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